AMERICAN GAS ASSOCIATION

OCTOBER
1961

More than 95,543,701* people will see this theme:

"Great Autumn Sale...Look for the Gold Star Values"

*Our estimate—one more if you watch too!

tie-in now...so they come to your store!

It's nation-wide! It's timed right! And it can pay off right in your own cash register . . . if you plan *now* to tie-in and promote top-of-the-line Gold Star Award-winning Gas ranges!

Look who's ready to help you: Jinx Falkenburg—in national TV commercials! Howard Keel—in spot radio singing commercials—to use in your town! And your local Gas utility people—ready *now* with ad mats, streamers, tent cards, broadsides . . . everything you need . . . plus promotional advice, if you want it.

Look where: on a great new TV show, **THEATRE 62**, that gives you nation-wide impact in your own selling area! Opening night, October 4th, 10 p.m. Eastern time—THE SPIRAL STAIRCASE! First in a series of adaptations for TV by Fred Coe of famous David Selznick productions. Another winner in November, INTERMEZZO . . . 10 p.m. November 19th! Both shows carry great new TV commercials on this Great Autumn Sale, to pre-sell your customers on the sale ranges *you'll* feature . . . as a part of the continuing advertising program for the entire Gas industry.

You'll find it pays to join this fabulous promotion . . . just as it pays to sell Gold Star quality!

AMERICAN GAS ASSOCIATION

GOLD STAR AWARD · AMERICAN GAS ASSOCIATION, INC.

There's money for you in the magic of these famous names of ranges built to Gold Star standards:

Brown Featuramic • Caloric
Crown • Detroit Jewel • Eagle
Gaffers & Sattler • Glenwood
Hardwick • Kenmore • Magee
Magic Chef • Monarch
Norge • O'Keefe & Merritt
Real Host • RCA Whirlpool
Roper • Suburban Viscount
Sunray • Tappan • Vesta
Waste King-Universal
Wedgewood-Holly • Welbilt • Wizard

• This advertisement appearing in GAS APPLIANCE MERCHANDISING, August, 1961; HOME FURNISHINGS DAILY, September 28, October 12 and October 30, 1961; and ELECTRICAL MERCHANDISING WEEK, October 2, October 17 and November 6, 1961

Breathtaking for both beauty and novelty is the projected N. Y. World's Fair Gas Exhibit building (see p. 8)

DEADLINES being what they are, the nearest we could come to covering the A. G. A. Convention in Dallas October 1-4 in this issue was the feature story on the *Parents'* magazine Advance Home, a major Convention attraction (see page 2). . . . However, in the November issue, we will have full reports on all the more serious goings-on at Dallas . . . attempting once again to provide for those unable to attend as good a vicarious trip as possible. . . . Of course, it is impossible to give really complete coverage to an event as large as the annual convention of the entire gas industry. . . . Many items worth lengthy exploration can be touched on but lightly—and many interesting sidelights must go unreported. . . . Such is the case with the Convention's social side. . . . To some, personal contacts may be the most important part of the entire meeting. . . . But since the benefits are for the most part individual, and since space is limited, the MONTHLY must perforce limit itself to reporting principally the business side of the Convention. . . . Looking forward to another major gas industry event, the 1964 New York World's Fair, we see it is still a long way off. . . . But, as we think you'll agree after seeing our cover and story on page 8, even the unveiling of a model building is news—when the structure is as startling in concept as the World's Fair Gas Exhibit building.

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CONTENTS FOR OCTOBER 1961

FEATURES

'ADVANCE HOME' IS GLIMPSE OF FUTURE 2
FOR U.S., SAFETY—FOR USSR, 'NYET' 4
WORLD'S FAIR MODEL REVEALS BOLD DESIGN 8
'MONTHLY' OFFERS FREE AD MATS 11
SUMMARY OF GAS INDUSTRY FINANCE 12
GAS LIGHTS WAY FOR SAFE LANDINGS 13
DEVELOPING A PLASTIC GAS METER—by L. A. Dixon, Jr. 15
TEST DEVICES SPY OUT PIPE DEFECTS—by Roger M. Duke 17
'BLANKET-O-FLAME' LURES CO-OP BUYERS 19
AMPLE FUTURE GAS SUPPLY ASSURED 21
GAMA SEES DOUBLED SALES BY '70 23
ACCIDENT FREQUENCY AT RECORD LOW 24

SECTIONS

HANDLING HIGH BILL INQUIRIES—by John Gibson (Accounting) . . 25
A WORKSHOP FOR UTILITY MANAGERS (General Management) . . 27
PROMOTION-IN-DEPTH PLAN GAINS (Industrial and Commercial) . 29

DEPARTMENTS

MEET YOUR ASSOCIATION STAFF (Strafford Wentworth) 10
INDUSTRIAL RELATIONS ROUNDTABLE 14
FACTS AND FIGURES 20
INDUSTRY NEWS 35
PERSONAL AND OTHERWISE 41
OBITUARY 43
CONVENTION CALENDAR 43
PERSONNEL SERVICE 44

INDEXED IN APPLIED SCIENCE AND TECHNOLOGY INDEX

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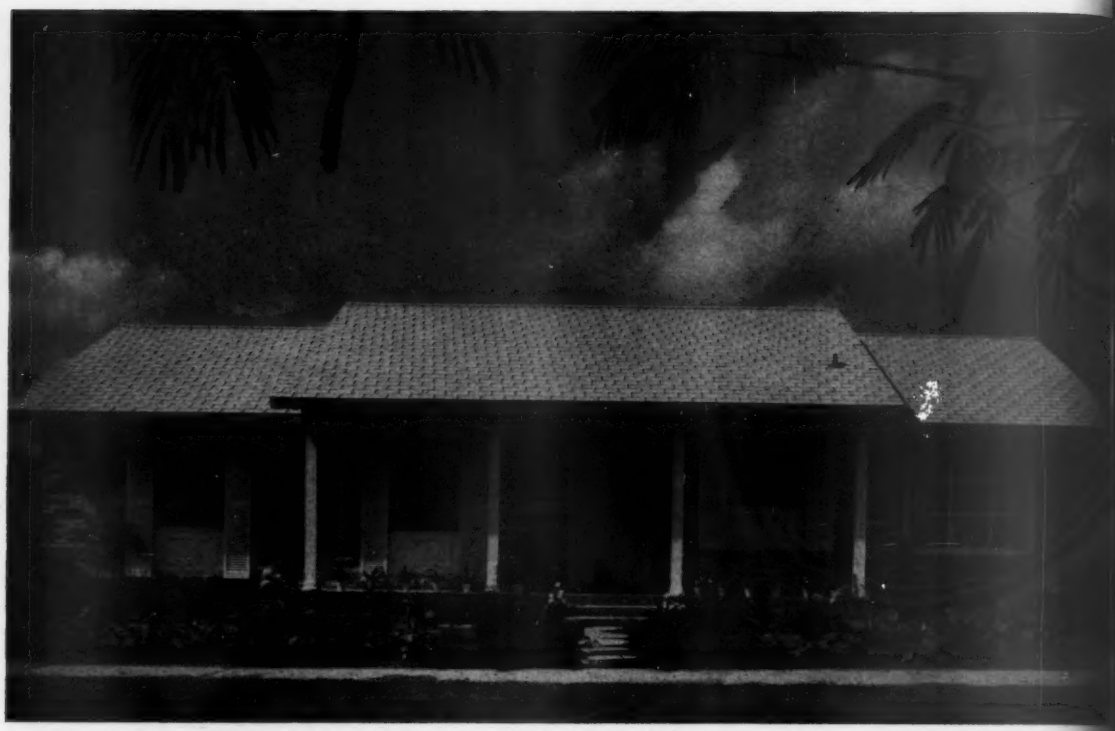


Beyond conventional-looking entrance to Advance Home is house full of surprises—startling new gas appliances

Flameless cooking and heating, thermoelectric power, a gas dishwasher are among conveniences shown

'Advance Home' is glimpse of future

In Dallas this month, more than 2,000 A. G. A. Convention-goers, and more than two million expected visitors to the Texas State Fair, were being invited to open a door and step into tomorrow.

The door is the entrance to the all-gas Advance Home, sponsored by A. G. A. and *Parents'* magazine, built by Centennial Construction Company of Dallas in cooperation with Lone Star Gas Company, and opened October 1 on the Texas State Fair grounds.

On the other side of the door are startingly new gas appliances and equipment presenting some completely unprecedented applications of gas. Most of the new equipment already is on the market. Practically every item is so brand-new as to be an exciting novelty to consumers. And nearly every application marks a dramatic advance beyond previous concepts of domestic gas use.

The fact that the appliances are in the house and operating makes the Advance Home not a "dream" house, but a dream-come-true dwelling designed to awaken viewers to the actual possibilities of gas use now available.

Here are the major product developments being shown in

Preway's gas dishwasher is shown at left, as built-in unit blending in with cabinetry of the Advance Home

Traditional living room decor contrasts with ultra-modernity of appliances

RCA Whirlpool's "Blanket-O-Flame" range top, left, is combined with Hardwick MicroRay infra-red oven

the Advance Home, some for the first time:

- Gas range with air-cushioned flame
- High-speed infra-red gas oven
- Flameless gas barbecue
- Gas dishwasher with water heater
- Gas toilet without plumbing
- Infra-red gas patio heater
- Infra-red wall heater
- Ice-maker gas refrigerator
- Add-on gas air conditioner
- Compact whole-house humidifier
- Thermoelectric gas furnace

Labeled a "House of Surprises" in an eight-page editorial treatment in the October issue of *Parents'* magazine, the Advance Home also is the subject of a feature article in the October issue of *Practical Builder* magazine. While covering design and layout ideas incorporated in the building, both magazines concentrate primary attention on the new gas applications.

Here are some details of the appliances:

The air-cushion gas range is Whirlpool Corporation's recently-introduced "Blanket-O-Flame" drop-in gas range. So engineered that air is forced up through a central burner duct to spread into a layer between the flame and the bottom of the utensil, the range is capable of maintaining temperatures low enough to cook an egg in a paper plate or to melt chocolate in its own wrapper without burning the paper.

The high-speed oven is Hardwick Stove Company's "MicroRay" built-in gas oven and rotisserie. The oven generates infra-red rays by heating of a ceramic tile element by gas combustion. Reflected by a shiny aluminum lining, the rays heat only solid objects—namely, food—in the oven, cooking much faster than is possible in conventional ovens.

The flameless gas barbecue, made by the Bruest Company, employs the "catalytic combustion" principle. The unit is portable, being mounted on a wheeled cart and employing plug-in connections to a gas outlet. This appliance is not on the market as yet.

The gas dishwasher is the just-introduced development by Preway, Inc., previously shown only to selected groups of gas industry leaders in a few cities this year. It has its own

(Continued on page 33)

Thirteen is a good omen for gas men—
when it means the 13th annual safety conference

For U.S., safety—for USSR, 'nyet'

B. J. Lorenz, chairman, A. G. A. Accident Prevention Committee, presides over conference opening session

C. L. Nairne was principal speaker at Tuesday morning general session

Safety—on-the-job, off-the-job, in America and in Russia—was the topic under study by nearly 200 delegates at the 13th annual Accident Prevention Conference in Dallas, Texas, September 12-13.

Two general sessions, with top safety men speaking on these and related problems, and a score of workshops providing an intensive interchange of safety ideas, problems and solutions, made up the conference program.

"Management Leadership in Safety" was outlined by C. L. Nairne, executive vice president, New Orleans Public Service, Inc. and first vice president, Southern Gas Association.

Major management responsibilities pointed out by Mr. Nairne included:

Setting up an effective company-wide safety program.

Stating, either formally or informally, what is the company's policy on safety.

"Formulation of a definite safety policy and the successful communicating of the sincerity of the policy statement to every company employee is a prime responsibility of top management," Mr. Nairne said. "It is also a responsibility of administrative management and supervisory management to make it emphatically clear that the safety of every employee is a goal to be achieved."

After summing up achievements of the gas industry safety program and speculating on the future goals which will make the record even more enviable, Mr. Nairne said:

"It is not fair to hold foremen, supervisors and superintendents accountable unless they are given the benefit of competent safety training and staff aid. So, top management has the responsibility of providing middle and lower management with good professional safety counseling, including knowledge of proper safety practices, training procedures and complete safety equipment and training.

"Finally, there is a host of other responsibilities incumbent on management to insure the safety of its employees—responsibilities such as making provisions for the careful selection and job training of new employees, periodic retraining of older employees, providing safe tools and equipment and working environment, encouragement of employees' suggestions for the elimination of injury-producing hazards, development of safe working manuals, and review of each personal injury to determine cause or causes which may suggest

B. J. Lorenz, S. J. Cunningham, H. G. Miller, T. J. Bork and J. A. Hickey discuss Wednesday's program

A. G. A. accident prevention exhibit displayed materials and publications used in program

Accident Prevention Awards were presented to a large group of gas men who helped to set this year's safety record

corrective preventive measures."

Drawing on the experience of New Orleans Public Service, Mr. Nairne outlined the plan developed 20 years ago in recognition of the need for greater formalization of the company's safety program.

Eight major areas were considered. These included:

1. Establishment of a safety department as a staff function with services of the safety counselor at the call of all operating managers, superintendents and supervisory personnel.

2. Authorization of safety counselor and all line organization administrative and supervisory personnel to make abundantly clear the feeling of top management's sincere concern for employee safety.

3. On occasion having representatives of top management attend safety meetings to present awards and to emphasize that they will do everything within their power to prevent employee injuries.

4. Budgeting of sufficient appropriations to provide technical training in safety practices for superintendents, foremen, supervisors, and the safety counselor.

5. Provision of the most modern health and safety materials, equipment and supplies.

6. Encouragement of safety suggestions by employees.

7. Ensuring the general safety education of employees and crediting them with outstanding performance when safety records are set.

8. Instilling in the mind of every employee a sense of personal responsibility for the safety of the public and fellow employees, in addition to his own safety.

In conclusion, Mr. Nairne predicted that "less and less personal injuries will occur to our industry's valued employees, only to the extent that management emphasizes within its own company and, in addition, actively supports the activities of such dedicated groups as the Southern Gas Association's Accident Prevention Council and the Accident Prevention Committee of the American Gas Association."

On Tuesday afternoon, ten workshops were conducted by outstanding line operating personnel representing gas companies throughout the country. These informal sessions provided a forum for discussion of safe practices in motor vehicle, customer service, distribution and transmision operations.

Right: Winners of the National Safety Council National Fleet Safety Contest

Above: Safety Achievement Awards were presented to five gas men

Right: Winners of Motor Vehicle Accident Prevention Awards, 1961

Drawing upon their experience in the field and diversified backgrounds, the line operating personnel acted as moderators for the meetings, providing delegates with an opportunity to establish an ever closer working relationship with others, who put safe practices into effect.

Repeating the successful workshop format on Wednesday morning, conference delegates participated in a series of seven "How-To" sessions covering three broad areas—distribution, customer service and transmission.

At each session three actual example safety meetings were conducted by line operating men using either a safety flipchart, 35 mm sound slide film or 16 mm movie as an audio-visual aid to assist them in making each of the 21 meetings effective. The groups were small enough to provide optimum group discussion.

A summary of all workshops and "How-To" sessions will be published by A. G. A., and copies will be distributed to all conference delegates. Copies will also be available on a purchase basis to the industry.

"The next milestone in safety in the United States will be achieved only through a nation-wide comprehensive off-the-job safety effort," stated T. J. Berk, safety consultant, Metropolitan Life Insurance Company, in the opening talk at the General Session on Tuesday.

Off-the-job safety

In his talk on "The New Menace—Off-the-Job Accidents," Mr. Berk pointed out that "the American Gas Association is currently planning to launch an industry-wide, off-the-job safety program in 1962."

Mr. Berk urged every delegate and every company to participate actively in this challenging industry-wide effort to prevent the national waste of manpower and the cost of suffering involved in off-the-job accidents.

"Absenteeism resulting from an off-the-job injury has the same result as one caused by an occupational accident—loss of income—pain to the injured—and loss of production," he said.

Expanding on this thought, Mr. Berk stated:

"To focus properly on the situation, we should bear in mind our expense as part of the community. Every time you hear a police siren or a bell clanging on a fire engine, you should actually feel money draining out of your pockets. Every time a bed is occupied by an accident victim, whether at home or in a hospital, your welfare department may be called on to take on this additional burden of expense."

According to Mr. Berk, the off-the-job accident situation is getting worse, indicating that we have not yet reached a plateau in developing complete safety attitudes. "Solving the problem is a matter of cultivating the right frame of mind," he stated, adding:

"If we are going to be successful to any degree, we will have to develop a round-the-clock safety consciousness among employees, with a carry-over into family life. This objective can be achieved only through the study and development of complete safety consciousness in individuals. In setting this target, do not lose sight of the expansive dividends made possible through making safe living a 24-hour proposition.

Safety workshops covering every aspect of accident prevention in the gas industry were held Tuesday afternoon and Wednesday morning

not only for the employed person, but also for his family and friends.

". . . in industry, management, as well as governmental officials, establish certain rules and regulations. We cannot use such devices in our fight against off-the-job accidents. A man's home is his castle, and the moat surrounding it is much wider and much deeper than the one which surrounded the medieval mansion. The problem is—how to get in?"

Mr. Berk suggested that this could be done very adroitly by providing safe working tools and equipment, and by insisting on: no broken or split handles on hammers; no frayed electric cords; plenty of light to see clearly the job being done; and insistence on protective equipment when a hazardous job is being done.

With insistence on these measures, it is felt that good ideas and practices once accepted are more likely to be used elsewhere, wherever they have an application—off as well as on the job.

Citing preliminary data gathered by his own company during the first step of an off-the-job safety program, Mr. Berk said:

"During the first six months of 1960, there were 29 new cases of off-the-job accidental injuries for each 1,000 persons employed. We were startled to find that each injury resulted in absenteeism of at least eight days' duration, and persons involved received payment of a disability benefit under the company's group insurance program. Of particular importance was our clerical personnel, where 19 men lost time because of an off-the-job injury to each one on-the-job injury; the ratio for women employees was 10 to one.

"During last year, we lost 7,300 work days as a result of 1,150 disabling off-the-job accidents. This meant that our home office was without the services of 28 employees for an entire year. Full wages were paid for absences less than five days, with costs to our disability benefits program for longer absences. Payment of medical, hospital and doctor bills was an additional expense.

"Although we lost the production time of these employees, the salaries alone paid to them while they were away from work approximated $140,000. This did not include overtime payment to other employees to maintain work schedules; cost of training other employees for replacement, where necessary; cost of performance errors by inexperienced replacements and other expenses and delays. And there were the costs of death benefits in fatalities."

Looking beyond the direct costs of off-the-job accidents, Mr. Berk pointed out the contributions of industries and individuals to support hospitals, philanthropic organizations and welfare work in each community. "Reducing off-the-job accidents would eliminate part of the load carried by these services," he said.

Asking everyone to join in the battle against "the terrible toll off-the-job accidents have demanded," Mr. Berk added:

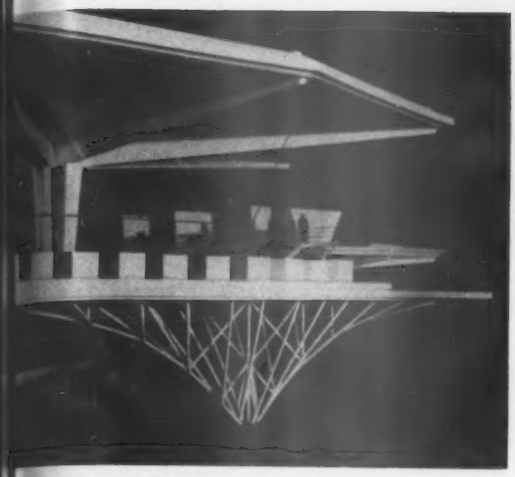
"Let us go to the grass roots and plant some seed for safe living."

Conference delegates were given a clearer understanding of accident re-

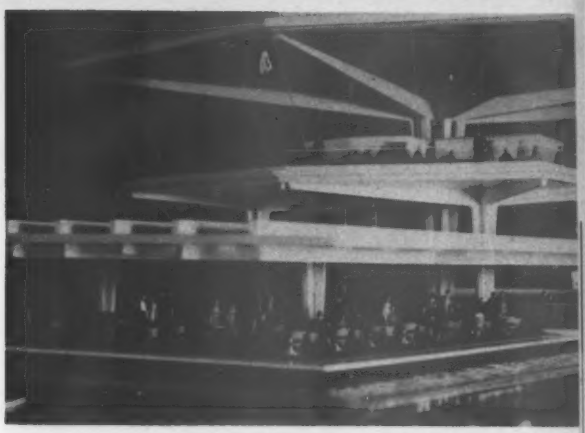
(Continued on page 31)

World's Fair model reveals bold design

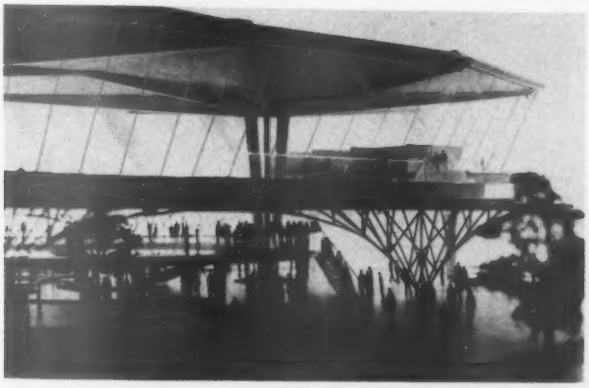
Scale model of Gas Exhibit building for New York World's Fair is admired by John E. Heyke, left, president of Gas, Inc.; Robert Moses, World's Fair head; Jinx Falkenburg, A. G. A.'s TV spokeswoman; and Walter Dorwin Teague, building's designer



Wing of Gas Exhibit building housing executive and administrative offices.



On ground level is public restaurant, shielded by air-wall. On upper level is private dining room



Moving ramp lifts visitors to revolving ring which carries them around circumference of Gas Exhibit building

New and unique design concepts with broad applications to future residential and commercial construction will be incorporated in the gas industry's $6 million exhibit at the 1964-65 New York World's Fair, according to John E. Heyke, president of Gas Inc., operators of the exhibit.

Gas industry leaders viewed a detailed scale model of the building recently at a meeting in New York. J. Anthony Panuch, vice president of the Fair, announced that the exhibit plans are the first to receive formal approval of the New York World's Fair Corp.

The Fair official said the gas industry "is to be complimented for its determination to present an exhibit designed not only to attract maximum attendance, but to make lasting contributions to domestic and industrial technology."

According to the designers, Walter Dorwin Teague Associates, who are responsible for the creation of the gas industry's exhibits, the design of the structure was determined by the concept of exhibit content.

"Exposition structures," said W. Dorwin Teague, "are dictated by considerations which achieve ideal functional settings for exhibits."

He pointed out that the light, open structure, with its air walls, integrated landscaping and large restaurant, provides an ideal setting designed to present the advanced technology of the gas industry in a manner which will have broad appeal to Fair visitors.

Mr. Heyke, who also is president of The Brooklyn Union Gas Co., said the building will make outstanding use of new ideas in air conditioning. He added that this would be true not only in the gas industry's building but throughout the Fair.

More than half of the 20 to 25 thousand tons of air conditioning for Fair buildings will use gas, Mr. Heyke said. He also predicted that not only will the majority of exhibitors at the Fair use gas for air conditioning but for most of the heating, cooking and water heating as well. He estimated that one billion or more cubic feet of gas will be used by exhibitors during the life of the exposition.

Gas air conditioning will play a major role in the industry's own building, particularly in combination with air walls. In the scale model, one of the most dramatic departures from convention is the restaurant which uses air as a construction material in three walls.

These air walls are achieved by shooting a stream of air between ceiling and floor. This continuous flow of air will keep out breezes, rain and insects, and will barely be felt.

The air walls permit outdoor dining in temperature-controlled surroundings with none of the undesirable features associated with open-air cafes.

The 200-seat restaurant will provide a relaxed, quiet atmosphere unusual in a public dining room. Sound will pass

right through air walls. A thick pile rug and an acoustical ceiling will further add to a setting conducive to pleasant dining.

A small waterfall will ring the exterior of the restaurant, falling into a pool dotted with floating flowers. Diners will have an unrestricted view of the Fair grounds.

The fourth, or interior, wall of the restaurant will be of glass. Behind it, and partially visible to diners, will be the gas exhibit kitchen. This also will be in full view of visitors in the display area.

In both the restaurant and exhibit area, conditioned air will be forced through the floor structures. Floors will be of a honeycomb-like construction to facilitate the movement of air.

In the restaurant, conditioned air will enter through grilles located around the perimeter of the room. The flow of air will continue until the dining area reaches the desired temperature.

A similar method will be employed in the building's exhibit area, with the unique exception that the air will be introduced through grilles concealed in the indoor landscaping.

Particularly unusual, according to the designers, is the containment of the conditioned air in the lower two-fifths of the exhibit area. A ceiling of air is provided by blowing conditioned air across the lower 20 feet of the exhibit hall.

Applications for home seen

Homes will be able to adapt gas air conditioning in combination with air walls to provide an entirely new concept in living. An air curtain could be installed in anything from a picture window to an entire wall, and climate would not limit its use. Even in winter an air wall could be used with snow on the ground.

When an entire wall or two have curtains of air, a living room will become an indoor patio, with all the ad-

(Continued on page 34)

Meet your Association staff

Strafford Wentworth

When conference registration is over, and when fees and dues have been painlessly extracted from A. G. A. members, then Strafford Wentworth, administrator of dues and services, may burst into song.

It's not that "Straff" is glad the job is done. It's just that he likes to sing, particularly at A. G. A. conferences and the annual A. G. A. staff dinner-dance.

"Straff" is a native New Yorker, and a "heroic tenor." ("Straff" says that means he is a tenor, who sings loudly.) He was born in the Bushwick section of Brooklyn between the old Trommer's Brewery and Evergreen Cemetery, and attended local schools in the area.

"Straff" 's first job in the gas industry was with the bookkeeping department of The Brooklyn Union Gas Company. In 1924 he left Brooklyn Union and joined A. G. A. "Straff" became assistant to Hugh Hartman, who wore the three hats of assistant manager, secretary, Accounting Section, and secretary, Technical Section (today the Operating Section).

Then "Straff" moved to the Auditing Department, and set the wheels turning on one of the first office romances at A. G. A. He spotted—or was spotted by—Lillian Betlinski, a secretary in the department, and romance bloomed over A. G. A. payrolls, dues and financial matters. Soon they were married, and established a precedent for romance at A. G. A. Since then, "Straff" has sat back and watched several other couples follow in his footsteps.

Today "Straff" and Lillian live in the Fleetwood section of Yonkers. For entertainment they enjoy going to restaurants such as Asti's in Manhattan. There they have a good meal and listen to "impromptu" operatic performances. Sometimes the audience—including "Straff" and Lillian, of course—joins in.

On weekends they go to polo matches. They used to attend opera and ballet performances regularly, but have not gone lately. "Straff" says that, after having seen such great performers as Caruso, Nijinsky and Pavlova, he doesn't really enjoy the current crop of good but not outstanding artists.

During the work week "Straff" is responsible for collecting member companies' dues, and handles pension, hospitalization and insurance matters for the A. G. A. staff. He also works on pre-registration for the annual convention and looks forward to singing with and for the conventioneers.

As a result of his performance, at the annual A. G. A. staff dinner-dance, "Straff" has been compared to Lauritz Melchior. "We have the same build, the same diet (steak and beer) and somewhat similar singing voices," says "Straff." His fellow A. G. A.'ers might add that "Straff" and Melchior also have the same genial personality.

"Straff" once took voice lessons and would have liked to try his hand at professional singing but got his start a little late in life.

So, he is content to take A. G. A. members' dues and then sing for them.

A. G. A.'ers also are happy with this arrangement.

These are some of the previous ad mats used

'Monthly' offers free ad mats

Beginning with this issue, A. G. A. free newspaper ad mats will be featured in, and offered through, a special insert in the center fold of the A. G. A. MONTHLY.

In the past, the A. G. A. Promotion Bureau has offered its ad mat service through the facilities of *Gas Industries Magazine*. Ads for every type of gas appliance and residential use of gas were featured in the mats. In the past year, for example, some of the mats illustrated the Blue Star Home program, gas ranges with the Gold Star emblem, holiday campaigns, the many uses of gas heating and cooling, and for the August ad mat, the industry-wide promotion for the Great Autumn Sale of gas appliances.

Introduced in 1960 with the cooperation of United States Steel Company and *Gas Industries Magazine*, and under the supervision of the A. G. A. Promotion Committee, the ad mat service offers a new advertisement each month to the industry. Both a four-column and a two-column mat is offered, in addition to various art elements. The mats are designed to enable utilities, manufacturers and dealers to prepare "personalized" newspaper advertisements by combining art elements with individual localized copy.

The center fold in this issue of the MONTHLY offers free ads for the Christmas season. Next month's MONTHLY, and each issue thereafter, will feature free ad mats to tie in with A. G. A. posters and with the industry's major residential campaigns.

Summary of gas industry finance

Prepared by A. G. A. Bureau of Statistics

Gas industry financing during the six months ended June 30, 1961, amounted to $1,161.9 million, 30.3 per cent above the $891.6 million reported for the same period of 1960. Of the dollar volume of issues sold, straight gas operating and holding companies accounted for 57.8 per cent of the total this year as compared to 55.6 per cent the previous year. Combination gas and electric operating and holding companies sold the remaining 42.2 and 44.4 per cent of the total volume for the respective six month periods.

During the same period in both years, debt issues comprised 69.4 per cent of the financing, and equity issues the remaining 30.6 per cent. The proportion of common stock sold to the total amount of financing declined to 17.9 per cent in the current period from 19.1 per cent a year ago, while the amount of preferred stocks sold increased from 11.5 to 12.7 per cent of the total.

Straight gas operating utilities sold $529.0 million of securities to June 30, 1961, an increase of 24.3 per cent over the comparable six months of 1960. Common and preferred stock issues declined in both dollar volume, and as a per cent of over-all financing, from the comparable period a year ago. Debt financing increased substantially from a greater volume of debentures sold. Thus, the ratio of debt to equity financing increased from 68.1 per cent last year to 78.3 per cent of the total financing during the six months ended June 30, 1961, for this group of companies.

Combination gas and electric operating utilities secured $490.8 million from the sale of securities during the first half of 1961, or 35.9 per cent more than the $361.1 million sold during the same 1960 period. Of the current total, 51.0 per cent was in the form of debt securities, 22.0 per cent in preferred stocks, and 27.0 per cent in common stocks. During the comparable first half of 1960, the respective figures were 79.2, 16.7 and 4.1 per cent.

During the first six months of 1961, straight gas holding companies went to the capital market for funds, and sold $143.0 million in securities, all debentures.

In the same period of 1960 these companies sold $27.0 million of common stock and $43.0 million of debentures, while holding companies with combination gas and electric properties received $35.0 million from the sale of common stock.

TOTAL GAS INDUSTRY FINANCING*
SIX MONTHS ENDED JUNE 30

	1961	Per Cent	1960	Per Cent
	(Millions)		(Millions)	
Common Stocks	$ 207.8	17.9	$170.0	19.1
Preferred Stocks	147.5	12.7	102.8	11.5
Bonds	550.6	47.4	536.9	60.2
Debentures	248.0	21.3	77.1	8.7
Notes	8.0	0.7	4.8	0.5
Total	$1,161.9	100.0	$891.6	100.0
Straight Gas Companies*	$ 671.0	57.8	$495.4	55.6
Combination Gas & Electric Companies*	490.9	42.2	396.2	44.4
Total	$1,161.9	100.0	$891.6	100.0

* Includes Holding Companies.

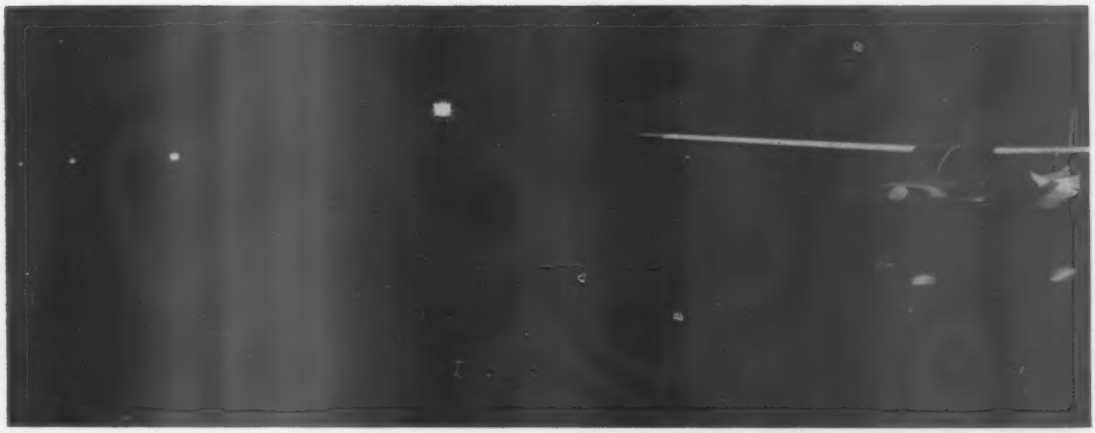
STRAIGHT GAS OPERATING UTILITY FINANCING
SIX MONTHS ENDED JUNE 30

	1961	Per Cent	1960	Per Cent
	(Millions)		(Millions)	
Common Stocks	$ 75.1	14.2	$ 93.0	21.9
Preferred Stocks	39.5	7.5	42.4	10.0
Bonds	325.5	61.5	259.6	61.0
Debentures	85.9	16.2	25.7	6.0
Notes	3.0	0.6	4.8	1.1
Total	$529.0	100.0	$425.5	100.0

COMBINATION GAS AND ELECTRIC OPERATING UTILITY FINANCING
SIX MONTHS ENDED JUNE 30

	1961	Per Cent	1960	Per Cent
	(Millions)		(Millions)	
Common Stocks	$132.7	27.0	$ 14.9	4.1
Preferred Stocks	108.0	22.0	60.4	16.7
Bonds	225.1	45.9	277.3	76.8
Debentures	20.0	4.1	8.5	2.4
Notes	5.0	1.0	0.0	0.0
Total	$490.8	100.0	$361.1	100.0

Gas lights way for safe landings



Plateau Natural Gas Company has equipped Syracuse, Kansas, airport with Federal Aviation Agency-approved complex of gas lights. Gas illuminates 2,800-foot runway, taxi area and outside of administration building

Outdoor lighting with natural gas has become an increasingly active area for gas company expansion, with commercial signs and external home lights leading the field. In the last couple of years, though, another entry has come on the scene—gas-lit airport complexes.

The first two gas-lit airports in the U.S. began operation in Arkansas, and the third—fully automatic—went bright July 11, 1961, in Syracuse, Kansas, through the efforts of the Plateau Natural Gas Co.

Local pilots interested in modernizing their airfield visited Duane Ply, the Plateau representative in Syracuse, early this year. In February, Plateau's assistant Southern division manager, Jake Yarbrough, accompanied by Syracuse pilots and businessmen, looked into the gas-lit airport installation at Benton, Arkansas, and found the idea very practical.

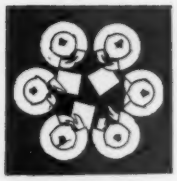
They checked next with the Federal Aviation Agency and were told that lights had to surround the field and taxi-areas. This required 30 lamps down both sides of the 2,800-foot runway, plus three at each end and 15 in the taxi-area. While they were at it, airport officials decided it would be a good idea for Plateau to light the administration building exterior with gas, requiring nine more lamps.

One of the major problems in the installation was finding the right kind of fixtures. Pilots landing on the runway would be blinded by the lights if they weren't hooded, yet these lights had to be set close to the ground to avoid contact with plane wings. How could a hooded lamp set close to the ground cast enough light to cover the entire field? Plateau turned to the Arkla Manufacturing Co.'s "Doorman" model, specifically designed for airport runway lighting, which filled the bill completely.

At full brightness the unit requires only four ounces of pressure, and maintains its flame with one ounce.

With a rectangular area needing light, Plateau laid the transmission pipe in a loop, eliminating any dead-ends. 1¼-inch pipe was used throughout, in 21-foot lengths, and the light fixtures were then offset two feet outside the trans-

(Continued on page 34)



Industrial relations round table

Prepared by
A. G. A. Personnel Committee

Edited by W. T. Simmons
Assistant Personnel Manager
Philadelphia Electric Co.

● **Ten traits that mark a "pro"**—in the June 1, 1961 issue of *Vital Speeches,* P. B. Comer, Jr. stated that in almost any field of endeavor there are three kinds of people: the incompetents, the average guys, and the pros. How do you identify a pro in the world of business? Here are ten distinguishing characteristics:

1) A pro joins the management team wholeheartedly. He is not just playing a manager's role—he is a manager. He doesn't ask for opportunity—he makes it. 2) A pro accepts total responsibility for his job. He wants his superiors to examine his work. He doesn't worry about shortcomings, because he is always working to improve himself. 3) A pro takes a professional attitude toward his work. He never stops learning. 4) A pro plans his work. He doesn't take chances on forgetting or misunderstanding. 5) A pro doesn't get into a rut. He is always growing; his job is always exciting to him. 6) A pro develops the capacities of his subordinates. He takes risks with people. 7) A pro is fair, open-minded, even-tempered. Without being a snob or a stuffed shirt, he stands above petty politics, gossip and the fear of making a small mistake. 8) A pro never lets himself be pulled down by mediocrity. His aims are high, and he keeps them high. 9) A pro's vision of life is as large as he can make it. His life outside his job is rich and varied. 10) Above all, a pro is honest with himself.

● **Give your employees a "bank account of confidence"**—W. T. Brady stated in the June, 1961 issue of *Dun's Review & Modern Industry* that freedom is an ideal we all work toward. But freedom is difficult to give to others, and it is difficult to accept, particularly in a corporate organization which demands specific and group-oriented responsibility of its members. Yet only by granting people freedom to try and fail, can one provide the opportunity to score those rare breakthroughs, upon which progress depends.

The one important limitation on freedom within a company is this: there must be no freedom to mistake or confuse the stated objectives and systems under which the company operates. With this in mind, it is only common sense to let key people know that they have made the team, that they have been given a bank account of confidence, against which they can draw without our countersignature. In return for this deposit of confidence, of course, there is a requirement for strict accountability.

Our nation was built upon the courage to pioneer, to try out new ideas, to stand above conformity. It was built by men who did not shy away timidly from the unconventional, who were not intimidated by fear, whose pride did not rule out the trial-and-error method. It would be a grim paradox if the fruit of their efforts were to be an over-prosperous, over-indulged economy, placid and unconcerned in a changing world.

● **So you have no time to read**—in the May issue of *Industrial Marketing,* Fred DeArmond indicated that for a supervisor to say that he has no time to read is like saying he has no time to work. Reading is the number one time-saver. It is a skill that anyone neglects at his own peril.

You can make your reading more effective in four ways: (1) Read more. Is your reading well-balanced? Be sure that there isn't a lot of duplication in your reading. Can you substitute one kind of reading for another and achieve a more "rounded" or purposeful reading program? (2) Read faster. If you read less than 300 words per minute, a good course in rapid reading can triple your speed. Is it worth it? Ask yourself how many hours of your day are spent reading. Now, how much time would you save by being able to read three times as fast as you can now? (3) Read selectively. Learn to scan so that you can skip what isn't useful and concentrate on what is. Learn the art of not wasting your time on what isn't worth reading. (4) Read to remember. Make a habit of clipping and filing, of underlining and marking significant material. It will help you remember it and will enable you to refer to it later, if this becomes necessary.

● **NLRB rulings**—Employers may remind employees when they can quit union—General Counsel Rothman of the National Labor Relations Board says it is all right for an employer to post notices reminding employees that at a certain period of the year they may withdraw from union membership. Presumably the same thing would be true of check-off revocation.

In the case which occasions the General Counsel's administrative decision refusing to direct issuance of a complaint on a union's charges that such action violates the Taft Act, the employer appears to have picked up the idea of posting after an employee, who wished to withdraw, asked a secretary to write out a resignation for him. Mr. Rothman says there is no evidence that the employer induced employees to resign their union membership. He merely posted excerpts from the escape clause of the membership-maintenance contract then in effect.

● **Court decisions**—The nagging steward—Stewards are expected to nag management—complain about plant inequities. But when the bulk of their nagging is for special treatment for number one, they can be fired like any other employee who is an habitual nuisance.

Plant prima donnas are trouble enough. But when one happens to be a highly competent worker and a union steward to boot, management may be in for a double dose of trouble.

This steward, with advanced degrees in prima donnaship, was fired on the ground that he was an habitual nuisance. The way the law stacks up at the present time, if his complaining was on behalf of other employees, his discharge was an unfair labor practice. But if what he nagged about was on his own behalf, for the most part, he was an ordinary nuisance and could be fired. The trouble was that the NLRB and the U.S. Court of Appeals did not see eye to eye on the evidence.

Since the nuisance was over a long period of time, we do not have the space to describe it fully. But you can get the picture from this brief rundown: When this steward could not get along with the night supervisor, they shifted him to day work. Then they put him back on the night shift, because he was needed at home during the day. They put him to work on jobs that produced more in hourly wages than was earned by others in the plant with better jobs than his. But, like a nagger, nothing would satisfy him. The straw that broke the camel's back was when this employee complained that during a time of slack work some other employee with less seniority was put on the job instead of himself. Then the company fired him.

The NLRB said he was unfairly discharged. He had been fired for complaints made on behalf of his co-workers. But the federal appeals court looked at the very same evidence and concluded he was fired for being an habitual nuisance on his own account. Management could fire a worker for that reason—even if he also happened to be a union steward.

● **Court decision**—Late grievances—To the labor relations manager, the right clause at the right time is as good as the cavalry coming to the rescue in an old-time western—just as the Indians set fire to the brush around the stake.

Whoever inserted this clause in a supermarket company's union contract did a good job: "No grievance or claim of violation of this agreement shall be recognized unless presented in writing within ninety (90) days

(Continued on page 28)

At left, cold box at Rockwell research lab tests meter boxes down to —60° F

Above, Weatherometer simulates climatic conditions ranging from tropics to Arctic

Developing a plastic gas meter

GAS INDUSTRY RESEARCH story

By L. A. DIXON, JR.

Vice President
Rockwell Manufacturing Company

Six years ago, Rockwell Manufacturing Company began a research program aimed at development of an adequate, economical plastic gas meter case.

Since then we have molded thousands of plastic cases from hundreds of resin formulations and evaluated them in myriad tests.

In 1957, we actually placed the first plastic gas meter in the field in substantial quantities all over the country.

Despite this action, which is normally a prelude to full-scale production, we have not to date found a combination of materials which meets our rigid standards for gas meter housing.

Our conclusion: For the immediate future, the best possible material for construction of gas meters is aluminum, which has been thoroughly tested and is produced in a complete range of sizes. In 15 years of extensive customer use, aluminum gas meters have set performance records over a wide range of field conditions, demonstrating a unique versatility and durability.

A new resin formulation

To admit failure thus far is not to admit failure of the research project. To the contrary, Rockwell research for an acceptable plastic has actually been augmented and intensified, if anything. Our chemical engineering group in Pittsburgh, and the technical and production staff at Rockwell's huge DuBois, Pa., gas meter plant, are enthusiastic about the prospects and confident of eventual success.

One of the reasons for their optimism is a special new polyester resin formulation and a new glass fiber which jointly offer great promise. Exhaustive tests are now being made on this combination, and evaluations to date indicate that the material may well possess the precise characteristics required. However, only time and every testing method available to assure a good product will pass the final judgment.

Emphasis on research

The search for an adequate plastic for gas meter cases goes on apace. Among the most important of our research projects today, it is a top priority project among our research goals.

The question might well be asked—why pursue another material when a highly effective and satisfactory material, namely aluminum, is already available, in wide use and commonly ac-

cepted by the gas industry?

The answer is, partly the search for the unknown quantity, and partly the result of the pressure of our competitive enterprise which demands innovation and improvement.

At Rockwell, we are placing greater emphasis on research than ever before in a search for new and improved materials, new and improved designs, new and improved methods of manufacture.

The price of progress is the unending search for better materials and better ways of doing things.

Plastics, a $6 billion industry in 1960, had no major role in American industry until World War II. The material dates back officially to 1868, when a pool-playing printer named John Wesley Hyatt developed a cellulose nitrate plastic to replace ivory in billiard balls.

Torque wrench is used to determine maximum torque screw insert on plastic case will stand without failing

Why a plastic meter

Today, there are more than 30 families of plastics on the market with thousands of variations. Some are resilient like rubber, others rigid like steel.

Plastics are now past the gadget-making phase. Industry is capable of making structurally sound, functional, reliable plastic products and, because of the vast amount of developmental work that has taken place, plastics are now in a position to replace materials that are, or could become, critical from a supply standpoint.

This was the primary reason for initial research towards a practical workable, economical plastic gas meter housing. This reasoning was supported and encouraged by the fact that some reinforced plastics have highly desirable physical properties. Our chief chemical engineer, Mr. Robert J. Sarraf, spells them out as follows:

Economy of manufacture
Corrosion and chemical resistance
High impact strength
Good insulating properties
Dimensional stability
Low maintenance costs
Low water absorption
Noise suppressive qualities
Flexibility of design

Past and current efforts

When Rockwell first embarked on its program of plastic gas meter research, reinforced phenolics and polyesters in the thermosetting class of plastics were selected as prime candidates for evaluation. Both of these classes of materials are highly impact resistant and, since gas meters receive considerable rough handling and abuse in the field, this quality was, of course, an essential requirement.

DuBois Engineering and Central Research worked initially with polyester and phenolics. Results from these initial tests indicated that phenolics might have some definite advantages. Also, a more substantial body of technical knowledge, criteria and data had been compiled over the years in this class of plastics.

In fact, the gas meter mentioned earlier, which received extensive field testing in 1957 and 1958, was a reinforced phenolic. These tests did not show all the qualities which were desired, although a great deal of knowledge was gained.

Efforts in the past two years have been concentrated on fiberglas reinforced polyesters. Over a period of the past several years, our research engineering staff has tested and evaluated 25 to 30 different combinations of these materials.

It is in this family of thermosetting plastics that we hope finally to come up with an acceptable gas meter case molded from plastic.

Steps in testing

Any given reinforced resin combination goes through a rigid and extensive series of testing procedures to eliminate substandard materials on any one of a dozen and a half different counts. Rigid specifications have been written for the ideal material, and no material will be finally adopted unless and until it meets the specs perfectly.

Tests which the candidate materials are subjected to include:

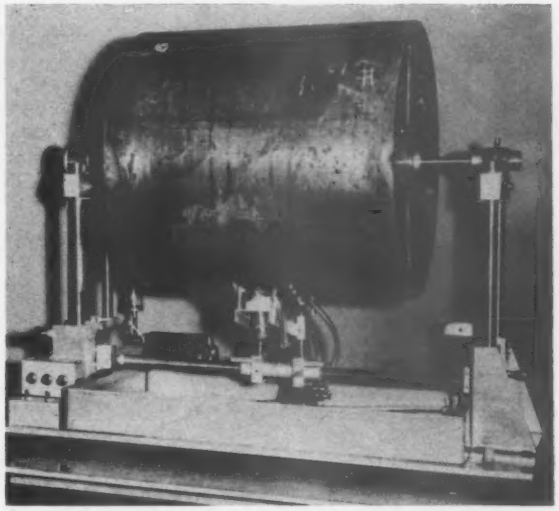
- Weatherometer tests, in which the material is subjected to accelerated weathering in a special device equipped to inflict ultraviolet rays and create high humidity and temperature conditions.
- Cold weather tests down to temperatures as low as —60° F, to check for dimensional stability and gas tightness.
- Thermal tests ranging from —60 to 150° F, to make sure that no difficulty will be encountered in assembly, in maintaining seals at the joints or from stresses set up in the parts due to temperature change.
- Accelerated corrosion tests in equipment which manufactures its own synthetic salt water and simulates years of corrosion in a short period of time.
- Long term atmospheric exposure in areas with a concentration of industrial fumes to check corrosion resistance and resistance to chemical attack plus atmospheric weathering.
- Hydrostatic tests to determine service limitations.
- Conductivity tests to check for insulating properties.
- Water immersion tests of 6-12

(Continued on page 32)

PAR RESEARCH story

Test devices spy out pipe defects

Field prototype of nondestructive pipe inspection machine



Experimental laboratory pipe inspection jig

By ROGER M. DUKE

Research Assistant
American Gas Association

The gas industry has always made an effort to conduct its operations in the safest possible manner, as well as to maintain economic operation. In order to accomplish these goals the industry has always been very selective in specifying transmission and distribution pipe; however, it is conceded that all pipe cannot always be perfect when it is laid in the ditch. While the percentage of imperfect pipe may be very small, it becomes a major problem considering the amount of new pipe laid each year. In-service failure, due to defective pipe, is not only expensive but, more important, it causes the loss of public good will.

In an endeavor to install more nearly perfect pipe, Project NQ-33 was initiated with the objective of developing a nondestructive inspection device that would constitute a high-speed, fully automatic inspection system. Such a device would reduce the human errors inherent in nonautomatic inspection methods.

The program was initiated in July, 1958. The first year of operation consisted of an exhaustive study and survey of nondestructive testing systems suitable for the inspection of pipe on an automatic basis. The survey included a study of defective and failed pipe in order to institute a method for systematic collection of statistical data on pipe defects and failures. The primary purpose of collecting such data was to determine and select limits for the inspection procedures. The secondary purpose was to standardize defect terminology and nomenclature. In addition, the survey was augmented by laboratory experimentation with certain basic testing methods in order to find the methods most compatible with line pipe inspection.

Beginning with the second year of the program in July, 1959, advanced laboratory work was conducted, using several selected inspection methods with known defects in samples of defective pipe. In addition, basic electronic systems were designed and tested for the purpose of automatic recognition, discrimination and classification of pipe defects according to type, size and location.

From the wealth of information gained from the surveys and experimentation, two testing jigs were designed and constructed. The first jig required the pipe to be tested to be completely immersed in water. While a great deal of information gathered from this jig was of great value in the designing of a second jig, the configuration of the immersed test jig would have required bulky immersion tanks to handle

the 40-foot lengths of pipe.

The second jig, a special ultrasonic water column coupling jig, was designed and fabricated. A variable-speed motor is used to rotate the pipe and move the carriage longitudinally. The longitudinal motion is geared to the pipe rotation and driven by means of a lead screw so as to move a fixed distance for each revolution of the pipe, regardless of the rotational speed.

Transducers are mounted in a special carriage located under the pipe, with provisions included for one longitudinal and two shear transducers. The carriage is equipped with a system of eight small wheels which ride against the surface of the pipe. The entire carriage is loaded against the pipe by spring pressure, thus allowing the pivoted rollers to ride over the weld beads, or irregularities in the pipe surface in such a manner that accurate transducer orientation is maintained.

A splash pan is located on the base of the jig and filled with water. The water is circulated by a small pump through a manifold and a system of tubes to each transducer column. The rate of water flow to each transducer column is individually adjustable. The water couplant flows up around each transducer and forms a continuous film between the column and the pipe surface, where it is allowed to overflow into the splash pan. The defect signals received from this set-up were of such excellent quality that it was decided to utilize this design in a full-scale field type prototype nondestructive inspection device.

During the third year, beginning in July, 1959, and to date, the prototype inspection machine was designed and constructed.

This equipment has been designed for the inspection of individual 40-foot joints of pipe such as would be found in a pipe storage yard. The machine will handle pipe ranging in size from three-quarters of an inch to 30 inches in diameter. The inspection station will include combinations of water column coupled with ultrasonic inspection utilizing multiple transducers, magnetic inspection and mechanical gaging. One fixed inspection station will be used with the pipe moving lineally and rotationally past the station.

Physically, the prototype machine is comprised of a pipe handling jig with an associated drive mechanism, an inspection station and a mobile trailer housing the electronic detection and discrimination equipment. The entire unit is designed to be transportable and set-up in a pipe yard.

The electrical power requirements are 220 volts, three phase and approximately 10 kw. Running water is not required; however, a supply of water must be close at hand.

The prototype machine is presently being tested further, using samples of defective pipe to gain sufficient information on the basic machine, so that the automatic discrimination system can be designed.

The machine in its present state of art presents data in the form of traces on a recorder, which are then interpreted by the operator. These traces are required in order to be able to design the electronic circuits, which will automatically interpret the signals, thus eliminating the need for the recording equipment and human analysis. This combinational discrimination system is one in which the presence or absence of signals from several defect-detecting transducers is analyzed in such a way that a particular combination signal indicates a particular defect. Much of this work will run concurrently with the process of gaining experience and information on the basic machine.

During the latter part of 1961, the prototype inspection machine will be modified to include the combination discrimination system instead of the chart recorder. The final operation of the machine will be fully automatic. The experience gained on the completed machine will permit the writing of specifications for machines tailored to the requirements of any individual company.

Lone Star employees sell 6,000 gas lights in one day

A Gas Light Day promotional campaign, held September 13 at Lone Star Gas Company, resulted in an average sale of one gas light for each of the company's 6,000 employees.

Gas Light Day was organized and conducted on the same basis as a major civic drive. All employees were divided into sales teams with a team captain designated to distribute material, present a sales pitch and answer questions. Each team was given a quota of 10 contacts to be made by each team member. No individual prizes were awarded but the team received cash awards for each gas light sold, provided the team quota for contacts had been made.

To encourage and build up enthusiasm for the campaign, a special price for employee purchase of the gas lights was announced in advance. Convenient terms as low as $2 a month with nothing down were offered to all customers. Purchase of more than one gas light by the customer also was encouraged by offering the second gas light during the campaign at half price when it was installed at the same address.

On September 5, team captains distributed a sales package kit at group meetings. The kit included gas light order cards, product sheets giving complete specifications and price information on various models of gas lights, prepared sales presentations for telephone and personal contacts, and a small badge that read, "May I Take Your Order For A Gas Light."

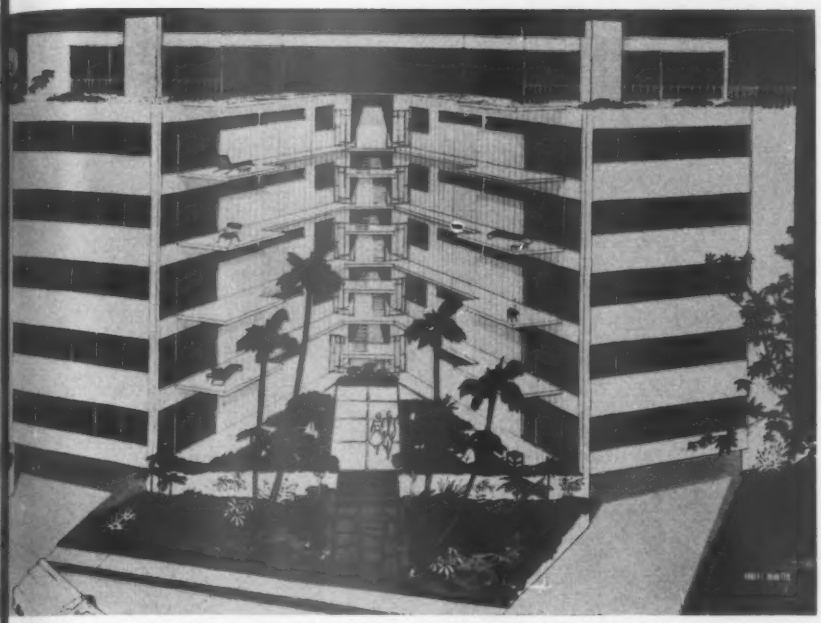
The material was included in a large manila envelope. On the front of the envelope were places for the employee's name, team number, team captain, name and address of prospects contacted, type of contact made and results of the contacts.

In Oklahoma, where appliance sales by a gas utility are prohibited by law, employees worked with dealers. A total of 302 sales were made with the help of Lone Star's 90 employees in the Oklahoma region.

During the week between September 5 and Gas Light Day, employees had an opportunity to study and become familiar with gas light prices and sales features, and to make preliminary lists of prospects to contact. Many employees already owned gas lights. Their personal experiences were used to sell the merits of gas light ownership to others.

Enthusiasm for the campaign combined with the ease of sales made to customers already acquainted with gas light features caused an overwhelming response to the campaign throughout Lone Star's system.

At the conclusion of Gas Light Day, many employees requested extra time to work prospects that could not be closed by the deadline. The company extended the campaign through September of this year.



Tamerlane luxury apartment development, with 22 units in high price range, features modern gas appliances as drawing card

Tamerlane apartment kitchen has Blanket-O-Flame gas range, 30-inch gas oven, optional gas refrigerator, all by RCA Whirlpool

'Blanket-O-Flame' lures co-op buyers

A gas surface cooking unit has become the prestige symbol which is helping sell upper-income co-op apartments for a California builder.

When ground was broken for the six-story, 22-unit Tamerlane apartment building in Santa Ana, Calif., on June 29, eight apartments and one penthouse were already sold at prices ranging from $28,500 to $79,500. According to the Osen-Ojeda Development Corp., the builder, a primary attraction is the RCA Whirlpool Blanket-O-Flame surface in the ultra-modern kitchen of each apartment.

A three-color brochure published by Osen-Ojeda devotes a full page to a description of the RCA Whirlpool equipped kitchen and says, "The most remarkable facility of all is the new counter-top range with revolutionary Blanket-O-Flame, an entirely new method of cooking. A 'blanket of air' separates the flame from pan bottoms. The result is heating action that is ever-constant, ever-smooth, with never a hint of burning or scorching."

Also installed in the kitchen are an RCA Whirlpool 30-inch gas oven and a dishwasher. RCA Whirlpool gas refrigerators are available as optional equipment.

Although the Tamerlane apartment

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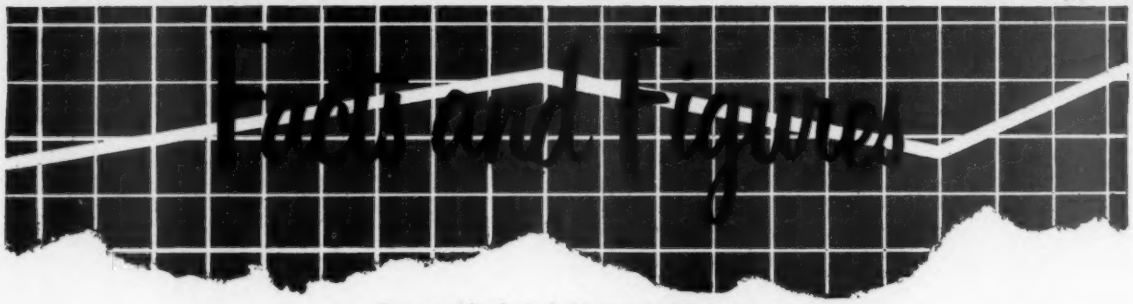

Prepared by A. G. A. Bureau of Statistics

The value of new private construction in the United States in July 1961 totaled $3,732 million or 2.0 per cent more then the comparable month of a year ago. In the main this increase is accounted for by a substantial increase in housing starts (non-farm). Housing starts for the month of July 1961 were 123,800, a relative rise of 6.2 per cent over July 1960. The continued rise in housing activity marks the second consecutive gain and third plus in a year and a half. The housing pickup is good news to appliance manufacturers, whose shipments during the first six months of 1961 were lower than in 1960.

As an indication of the brightening future portended for the appliance manufacturers by the increasing housing starts, the month of July saw over 103,000 gas central heating units shipped, 7.9 per cent more than last year at this time. Although there were shut downs because of vacations for periods ranging from one to four weeks, all appliance shipment figures registered a relative increase except for gas water heaters. The decline in water heater shipments can be accounted for by vacations.

Sales of gas to ultimate consumers during July 1961 aggregated 5,541 million therms, a decline of 0.6 per cent from the 5,574 million therms of gas sold during July 1960. This decrease can be attributed entirely to the warm weather experienced during the current month as compared to the relatively mild weather of July 1960.

Sales of gas during the twelve months ending July 31, 1961 aggregated 93,273 million therms, which was equivalent to a 1.6 per cent rise above the 91,822 million therms sold in the previous twelve month period. Residential, commercial and other gas sales during the twelve month period ending July 31, totaled 47,169 million therms, an increase of 4.2 per cent above the 45,282 million therms sold during the previous twelve month period.

SALES OF GAS AND ELECTRIC RESIDENTIAL APPLIANCES DURING JULY, 1961

(WITH PER CENT CHANGES FROM THE CORRESPONDING PERIOD OF THE PRIOR YEAR)

	July		June		First 7 Months, 1961	
	Units	Per Cent Change	Units	Per Cent Change	Units	Per Cent Change
RANGES (including build-ins)						
Gas	110,100	+ 4.2	167,200	+ 0.4	855,100	— 8.6
Electric	104,000	+ 1.1	145,000	+14.0	894,700	—*
WATER HEATERS						
Gas	177,100	—30.3	183,600	—28.3	1,542,700	— 4.1
Electric	59,400	— 0.3	71,900	+15.4	433,600	— 0.4
GAS HEATING—Total	103,550	+ 7.9	108,264	+ 3.6	599,885	+ 0.4
Furnaces	79,700	+ 6.6	83,100	+ 4.0	475,800	+ 1.3
Boilers	13,550	+16.0	15,364	+ 8.2	74,285	+ 6.7
Conversion Burners	10,300	+ 8.4	9,800	— 5.8	49,800	—14.9
OIL-FIRED BURNER INSTALLATIONS	38,727	+ 5.5	31,360	— 4.4	250,258	— 3.7
DRYERS						
Gas	22,284	—*	17,303	—24.5	192,585	—16.0
Electric	42,639	—15.0	43,402	+ 3.2	362,592	—12.0

Sources: Gas Appliance Manufacturers Association, National Electrical Manufacturers Association, "Fueloil and Oil Heat," and American Home Laundry Manufacturers' Association.
* No change.

GAS SALES TO ULTIMATE CONSUMERS BY UTILITIES AND PIPELINES DURING JULY, 1961

(MILLIONS OF THERMS)

	Month of July			Twelve Months Ending July 31		
	1961	1960	Per Cent Change	1961	1960	Per Cent Change
Natural gas	5,450.1	5,476.9	—0.5	90,956.2	89,525.5	+1.6
Manufactured and mixed gas	91.5	97.3	—6.0	2,317.2	2,296.7	+0.9
Total gas	5,541.6	5,574.2	—0.6	93,273.4	91,822.2	+1.6
Residential, commercial, and other	1,661.0	1,563.5	+6.2	47,169.5	45,282.4	+4.2
Industrial	3,880.6	4,010.7	—3.2	46,103.9	46,539.8	—0.9
Indices (1947-1949 = 100)						
Total gas sales (A. G. A.)	259.8	261.3	—0.6			
Residential, commercial, and other (A. G. A.)	248.5	233.9	+6.2			
Industrial (A. G. A.)	264.9	273.8	—3.2			

PERTINENT BUSINESS INDICATORS, JULY, 1961

(WITH PER CENT CHANGES FROM THE CORRESPONDING PERIOD OF THE PRIOR YEAR)

	July			June		
	1961	1960	Per Cent Change	1961	1960	Per Cent Change
Industrial activity, FRB (1947-49 = 100)	168	166	+1.2	167	166	+0.6
Consumer prices (1947-49 = 100)	128.1	126.6	+1.2	127.6	126.5	+0.9
Housing starts, non-farm (thousands)	123.8	116.6	+6.2	134.2	126.6	+6.0
New private construction expenditures ($ million)	3,732	3,660	+2.0	3,732	3,474	+4.0

Proved and unproved reserves, plus synthetic production, add up to abundance of gas for future needs

Ample future gas supply assured

Prepared by A. G. A. Bureau of Statistics

Proved reserves of U. S. natural gas have shown significant gains in recent years. Despite this favorable situation, an occasional prophet of gloom has raised the question as to whether natural gas supplies are not on the verge of exhaustion.

This article answers such pessimistic contentions and analyzes the supply picture factually and objectively.

It was not too long ago that a well-recognized authority indicated reserves might ultimately reach 170 trillion cubic feet in the foreseeable future. This statement was made in 1942. There is no need to dwell upon the inadequacy of this estimate. Not only do we have proved recoverable reserves of over 263 trillion cubic feet as of the end of 1960, but production of 148 trillion cubic feet occurred in the intervening years.

Much of the material presented herein has been prepared by the A. G. A. Bureau of Statistics and used in previous studies and reports. The materials have been revised where changes in trends and economics have warranted such revisions. However, in the main, they represent the basic data developed and utilized in the 1956 analysis on the *Supply of, and Demand for, Natural Gas in 1975* and *Long Term Outlook for Energy Demands,* prepared in 1958.

Demand for natural gas

Natural gas will continue to supply a substantial portion of the future energy requirements of our growing population. In 1945 net production of natural gas was 4.8 trillion cubic feet, in 1955 it was 10.2 trillion cubic feet and in 1960 it was 13.1 trillion cubic feet. It is estimated that net production of natural gas will be 18.5 trillion in 1970, 21.0 trillion in 1975 and 24.0 trillion cubic feet by 1980. Incidentally, Sam Schurr and Bruce Netschert of Resources For the Future, Inc., in their excellent book, *Energy In the American Economy, 1850-1975,* published by the Johns Hopkins Press, have estimated 1975 net production of natural gas to be 19.9 trillion cubic feet.

Natural gas production has been estimated by the Bureau of Statistics to account for 33.1 per cent of the total energy demand in 1970 and 34.1 per cent by 1980, as contrasted to 28.3 per cent in 1960 and 17.5 per cent in 1950.

The supply of natural gas

The A. G. A. Committee on Natural Gas Reserves has estimated proved recoverable reserves to be 263.8 trillion cubic feet at the beginning of 1961. Proved recoverable reserves of natural gas are those reserves estimated to be producible under present operating practices (technology and current cost-price conditions). The concept of ultimate reserves is quite different from that of proved recoverable reserves. Estimates of ultimate reserves include not only the proved recoverable reserves but also that amount of natural gas still undiscovered but nevertheless in place awaiting to be proved up.

Estimates of ultimate reserves usually are based on the assumption that the total volume of marine sedimentary rocks will yield petroleum and natural gas in amounts proportional to the yields obtained from the volume of rock thoroughly explored thus far. This relation is expressed as the "gas-oil ratio" which assumes that for each barrel of proved reserves of crude oil discovered the proved reserves of gas will be augmented by so many thousand cubic feet.

The crucial element in the determination is the estimate of ultimate reserves of crude oil. The procedure most widely used for estimating ultimate reserves of crude oil is to determine the amounts of crude oil so far found per acre explored and to multiply this figure by the number of acres known to have appropriate underlying geographical formation suitable for the accumulation of crude oil and natural gas.

Table I reflects the historical trend of gas-oil ratios. As can readily be seen, this ratio has been increasing. There are a number of reasons which have been set forth to explain this trend. One such reason is that the gas-oil ratio rises with depth and the tendency today is for deeper producing horizons. Another has been the stepped up search for gas with a higher proportion of successful completions.

Gas ratio increasing

Historically, in the United States, 4,000 to 5,000 cubic feet of natural gas have been discovered for each barrel of oil. In recent years the ratio has been higher—6,000 to 8,000 cubic feet of natural gas per barrel of oil. It is reasonable to assume that the gas-oil ratio will be higher in the future as a result of these trends and future advances in the technology of drilling.

TABLE I

GAS-OIL RATIOS IN TOTAL DISCOVERIES OF PROVED RESERVES

(Cubic Feet Per Barrel)

Year		5 Year Average
1960	5,907	7,099
1959	5,654	
1958	7,285	
1957	8,296	
1956	8,355	
1955	7,666	5,238
1954	3,462	
1953	6,205	
1952	5,218	
1951	3,637	
1950	4,702	4,185
1949	3,976	
1948	3,662	
1947	4,455	
1946	4,131	

The Bureau of Statistics has utilized the gas-oil ratio of 7,000 in preparing its estimates of ultimate gas reserves. Incidentally, this same ratio was employed by Dr. Netschert. It was his contention that this represented a "conservative expression" of the ratio.

In estimating the ultimate reserves of natural gas, the gas-oil rate is applied to estimates of ultimate reserves of crude oil. There are a number of authorities who have made what are considered "conservative" estimates of ultimate reserves of crude oil which are reported in Table II. These estimates have been adjusted by deducting past production so that they reflect ultimate reserves of remaining oil.

TABLE II

ESTIMATES OF ULTIMATE RESERVES OF CRUDE OIL

Wallace Pratt	160 billion barrels
Bruce Netschert	162 billion barrels
Hill, Hammer & Winger Chase Manhattan Bank	185 billion barrels
John Murrell of De Goylyer and McNaughton	135 billion barrels
U.S. Department of Interior	236 billion barrels

It can readily be seen that it is not inconceivable that a figure of 190 billion barrels of oil remain. If we deduct from this amount the 31 billion barrels that are attributable to currently proved recoverable reserves, there remains 159 billion barrels still to be discovered. If this 159 billion barrels is multiplied by the gas-oil ratio of 7,000 cubic feet per barrel, we find that there are still 1,113 trillion cubic feet of gas to be discovered. The addition of 263 trillion cubic feet of current proved recoverable reserves yields a total remaining U.S. reserve of 1,376 trillion cubic feet.

The table below compares the A. G. A. estimate with those estimates of ultimate natural gas reserves prepared by qualified authorities.

Lynn F. Terry—John Winger (1957)	1,200 trillion cubic feet
Bruce Netschert (1958)	1,200 trillion cubic feet
Ralph Miller—Geological Survey	1,150-1,700 trillion cubic feet
Lewis G. Weeks	1,000 trillion cubic feet
Wallace Pratt (1956)	725 trillion cubic feet
A. G. A. Bureau of Statistics (1960)	1,376 trillion cubic feet

It would appear from the foregoing data that the future supply of natural gas, despite increased future production, is assured through 1980 and even to the year 2000. It is, however, anticipated that by 1990 some of our natural gas supply will be supplemented by synthetic gas derived from coal, oil, oil shale, and/or tar sands in order to meet the growing demands. As was indicated in the earlier report published in 1958, the use of synthetic natural gas will represent a very minor quantity but will increase rapidly, and by the year 2000 may represent as much as 42 per cent of the total gas supply required. By 1980, after the cumulative net production of 370 trillion cubic feet of natural gas for the preceding two decades has been deducted, we would still have something like 1,000 trillion cubic feet of gas. It should be noted that our presentation has been confined only to the United States. No attempt was made to analyze the impact of reserves available in Mexico and Canada for U.S. consumption. These reserves are and will be significant. There are some who have indicated that ultimate reserves in Canada alone will be of the magnitude of 300-1,000 trillion cubic feet, the bulk of which will be available for export.

Pricing of natural gas

It would be presumptuous on our part to attempt to predict not only the trend but the prices of natural gas and alternative energy sources.

The average wellhead price of natural gas in 1960 was 13.6 cents per Mcf, and contracts are being written in the range of 16 to 25 cents. Higher prices at the wellhead have been acting as a stimulant for drilling for natural gas. It is interesting to note that, in spite of a decline in total new wildcat well drilling, drilling for natural gas has more than maintained its pace and is currently ahead of the comparable period a year ago by 30 per cent (see Table IV). In the long run, the increased drilling activity will benefit the consumers by proving up additional reserves at the lowest possible cost.

Total wells drilled during the first six months of 1961 was up 6.7 per cent over the comparable cumulative period in 1960. However, gas well completions were up from 1,657 in the first half of 1960 to 2,225 in 1961 for a gain of 34.3 per cent. All indications point to a record number of gas well completions for the year (see Table III).

There are a number of stabilizing factors which are at play and which will affect the price of natural gas in the future. Of prime importance is the recent FPC policy regulation dealing with area pricing as a means of regulating the prices received by producers at the wellhead. Although there is some controversy as to what constitutes a fair area price, it is evident that this approach by the FPC is one which offers excellent possibilities and one which could easily provide the necesary stimulation for active drilling for natural gas. Another policy decision by the FPC which became effective this year is its refusal to certify new contracts which contain favored nation and other undeterminable escalation clauses. This will go a long way toward stabilizing prices at the wellhead. The FPC has made it clear, however, that it will permit periodic and predetermined price escalation during the life of a long term contract, such as a one cent per Mcf increase every four or five years.

Of still greater importance have been the approaches recently undertaken by El Paso Natural Gas Company and the Columbia Gas System. In the former, El Paso has, over a period of years, renegotiated most of its contracts with independent producers. The producers have agreed, for some consideration, to eliminate all favored nation clauses but periodic price determined escalation. Recently, Columbia Gas System entered into a long-term gas purchase contract with Humble Oil & Refining Company for 6.2 trillion cubic feet. The effect of this to Columbia will be the delivery of gas for a period of about 25 years "at a relatively firm price," tending to level off the upward trend in gas prices which

(Continued on page 30)

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COMPANY NAME

ANOTHER EXAMPLE OF HOW TODAY'S STEELS LIGHTEN YOUR WORK, BRIGHTEN YOUR LEISURE, WIDEN YOUR WORLD

DESIGNED FOR CHRISTMAS TIME SELLING of Modern Gas Appliances as major gifts for the home, is this newspaper ad, matted as you see it here, but in four-column size. The ad may be rearranged and enlarged by separating the ad elements, and by adding your own mats of brand named products if you wish.

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It's so easy to say...
Merry Christmas
when you give a modern
GAS
APPLIANCE
CHOOSE A...
GAS "BUILT IN" RANGE — the last word in modern design, automatic cooking.
GAS DRYER — Laughs at bad weather, dries clothes "powder puff" soft.
GAS REFRIGERATOR — for economy, convenience. No moving parts to break down.
say Merry Christmas with a modern GAS appliance
Live Modern... for less with GAS
COMPANY NAME

This ad will be matted in a 2-column size. It can be used alone or in conjunction with other elements that have appeared in previous ad mat releases.

SEPARATE VERSIONS OF THE CHRISTMAS LABELS in additional sizes, and of the "Live Modern for Less with Gas" logotype also included for use as you desire in other ads or in mailing pieces. These ad elements will come to you in mat form. By adding your own ideas through headlines and illustrations of the brands you feature, you can tailor them to fit the needs of your own merchandising program.

NOTE: Your local newspaper advertising representative is thoroughly familiar with utilization of mats such as these in a variety of different ways. He will be glad to help you prepare your ads to your liking.

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Please send the Free Ad Mats featured in the October issue of the A.G.A. Monthly for use during the Holiday Campaign to:

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Return this form to Promotion Bureau, A.G.A., 420 Lexington Ave., New York 17, N. Y.

GAMA sees doubled sales by '70

The gas industry will be serving 34 per cent more customers and ringing up 114 per cent more sales revenues by 1970, it is predicted in an interim report by the Gas Appliance Manufacturers Association to its 582 members.

Signs of a record-shattering decade for the industry already are evident in the field of residential, commercial and industrial gas air conditioning, said William G. Hamilton, Jr., president. By 1964, he predicted, gas air conditioning will have become a major factor in balancing year-round demand for natural and liquefied petroleum (bottled) gas.

Sales of gas heating equipment in 1940 were "so negligible that there was no need to keep records," said Mr. Hamilton, who is also president of the American Meter Co., Philadelphia. But now, he pointed out, gas is the nation's No. 1 heating fuel, having accounted for nearly 25 per cent of the 92.9 billion therms of utility gas sold in 1960.

Mr. Hamilton predicted that the number of residential gas heating and cooling customers of the utilities alone will increase 65 per cent by 1970, and that similar progress is likely in rural and suburban markets where homes are served by LP-gas.

"In the past, the end of each heating season meant having to find summer markets for gas," said the GAMA official. "Now it appears, from the way builders and homeowners are adopting the fuel for both cooling and heating, that this problem of market-balancing will soon be eliminated."

Mass production and popular pricing of gas refrigerators, development of "plug-in" gas appliances for indoor and outdoor use and major developments in pipeline technology are among other advances forecast by Mr. Hamilton.

Harold Massey, GAMA managing director, envisioned extensive use of electronically controlled outdoor gas lighting. Over a million of these lights have been installed in the past four years, he said, and more than 40 companies are manufacturing them. This fact, he observed, is in sharp contrast to the universal belief two decades ago that the gas industry would expire with the "demise" of gas lighting.

"It is noteworthy," Mr. Massey said, "that gas lights are selling at a faster clip right now than at any time during the so-called Gas Light Era."

Pipelines busy

The GAMA official gave these additional reasons for his belief that the 925,000 miles of gas main and pipelines projected by 1970 (the total was 632,000 in 1960) will be "kept busy":

- Development of gas ranges for "programmed" cooking. The growing popularity of prepared foods, in processed, frozen and packaged form, will require ranges with a high degree of automation to thaw, warm or "finish" pre-cooked foods.
- Further "compacting" of all residential gas equipment, such as furnaces, boilers, ranges and water heaters and the combining of clothes washers and dryers into single dual-purpose units.
- Adoption of smokeless-odorless gas disposers as standard home equipment to eliminate garbage and trash disposal problems for householders and cut air pollution problems for communities.
- Use of various adaptations of the Schwank radiant burner to revolutionize the operation of gas home appliances, make outdoor heating practical and improve industrial processing equipment. The Schwank burner, Mr. Massey explained, operates on the principle of the radiant gas heater which gains extra "heat throw" by heating a ceramic grid to incandescence. The Schwank burner employs as its grid a ceramic core pierced with hundreds of small holes through which a mixture of gas and air flows and burns on the outer surface. The result, he said, is a compact, highly efficient unit that can be used effectively to provide concentrated heat in outdoor spaces, like sports arenas, swimming pools and patios, and hard-to-heat industrial areas.

Speedy burner

The new burner, Mr. Massey added, will become an important construction tool. "Powered" by utility or bottled gas, it can be used, for example, to speed the drying of plaster and other materials and the melting of snow at truck-loading platforms. In the kitchen, it will speed broiling in new gas ranges, by allowing meat to be hung vertically between two of the radiant units, thus broiling both sides at the same time.

Application of these new heat generating units to a variety of industrial processes will unquestionably lead to smaller, more efficient home central heating systems, he said.

Mr. Massey predicted that progress in pipeline technology will be vast. Advances, he said, will include use of aircraft turbo-jet engines to run remote-controlled gas pipeline compressor stations. Various users of stationary power now are watching a full-scale experiment along this line being conducted by a subsidiary of the Columbia Gas System in collaboration with Pratt & Whitney and Cooper-Bessemer.

It is likely, Mr. Massey added, that the gas pipelines themselves will be usable as a system of communication and that special computers for long-range weather forecasting will make gas dispatching techniques more exact.

Projects to increase underground gas storage facilities by storing liquefied natural gas at minus 259 degrees in buried concrete tanks and to transport it "frozen" on ships also are likely to bring results in the near future, he said. The latter development, Mr. Massey added, would ultimately increase U.S.

(Continued on page 33)

Accident frequency at record low

The 83 sample companies selected as being representative of the gas industry showed a decline in the accident frequency rate for the second quarter of 1961. These companies employ 76,707 workers or 37.2 per cent of the gas industry's employees.

A record low frequency rate of 5.35 disabling injuries per million manhours of exposure was achieved in the second quarter of 1961. This was a decrease of 14.4 per cent from the 6.25 disabling injuries per million manhours worked for the comparable period last year. The severity rate of 444 days lost per million manhours of exposure for the second quarter of 1961 was a 16.1 per cent decrease from the 529 days lost per million manhours of exposure for the same period during 1960.

The frequency rate for the second quarter of 1961 showed a 14.4 per cent reduction from the frequency rate of 6.51 disabling injuries per million manhours worked, recorded for the first quarter of 1961. The severity rate, however, did not reflect this downward trend as it increased from 441 days lost per million manhours of exposure for the first quarter of 1961 to 444 days lost for the second quarter of 1961.

The first six months of 1961 indicated a decrease of 3.0 per cent from the frequency rate for the first six months in 1960. There were 5.92 disabling injuries per million manhours of exposure this year as compared to 6.10 disabling injuries per million manhours of exposure for the comparable period last year. The severity rate increased 7.3 per cent for this period, increasing from 412 to 442 days lost per million manhours of exposure.

Another record year may be on its way as the frequency rate for the first six months of 1961 is 15.5 per cent lower than the 1960 annual frequency rate of 7.01 disabling injuries per million manhours of exposure. The severity rate showed a 21.5 per cent decline from the 1960 annual severity rate, falling from 563 to 442 days lost per million manhours worked.

The downward trend was also reflected in the motor vehicle accident statistics. Of the 83 sample companies, 69 reported motor vehicle accident data. These companies represent 34.9 per cent of the 206,400 employees of the gas industry and own and operate 19,555 vehicles which travelled over 118 million miles during the first six months of 1961. This period was marked by 78 employee disabling injuries as the frequency rate dropped 6.0 per cent from the rate for the first six months last year, decreasing from 1.50 to 1.41 vehicle accidents per 100,000 miles travelled. However, when compared to the 1960 annual vehicle accident frequency rate of 1.34 accidents per 100,000 miles, there was an increase of 5.2 per cent.

GAS EMPLOYEE ACCIDENT EXPERIENCE

Six Months 1961

	Annual	First Quarter (Sample)		Second Quarter (Sample)		Six Months (Sample)	
	1960	1961	1960	1961	1960	1961	1960
Number of reporting companies	554	83	83	83	83	83	83
Average number of active employees	195,591	76,306	75,931	76,707	77,047	77,877[1]	76,489[1]
Number of injuries							
Fatality	23	2	1	2	2	4	3
Permanent total disability	0	0	0	0	0	0	0
Permanent partial disability	92	3	6	2	4	5	10
Temporary total disability	2,642	236	220	197	238	433	458
Total	2,757	241	227	201	244	442	471
Days charged							
Fatality	138,000	12,000	6,000	12,000	12,000	24,000	18,000
Permanent total disability	0	0	0	0	0	0	0
Permanent partial disability	32,861	490	1,665	695	4,245	1,185	5,910
Temporary total disability	50,688	3,821[2]	3,463	3,978	4,411	7,799	7,874
Total	221,549	16,311[2]	11,128	16,673	20,656	32,984	31,784
Frequency rate	7.01	6.51[2]	5.96	5.35	6.25	5.92	6.10
Severity rate	563	441[2]	292	444	529	442	412
Vehicle accident statistics							
Average number of employees	178,456	70,712	71,804	68,995	72,289	69,854[1]	72,047[1]
Number of vehicles	46,429	19,460	21,121	19,649	21,304	19,555[1]	21,213[1]
Vehicle miles traveled (000)	541,969	58,073[2]	58,402	60,798	61,954	118,871	120,356
Number of reportable accidents	7,269	941	1,029	734	774	1,675	1,803
Number of personal injuries	185	39	54	39	33	78	87
Accidents per 100,000 miles traveled	1.34	1.62[2]	1.76	1.21	1.25	1.41	1.50

[1] Average of 1st and 2nd quarters.
[2] Revised figures.

One company found labor costs could be cut by classification of calls on heating bills

Handling high bill inquiries

By JOHN GIBSON
Michigan Consolidated Gas Company

Many gas utilities are plagued with problems every fall and winter, particularly those companies having a high saturation of space heating and those which render "Start," "No Heat," and other space heating services.

One of the major problems which confront customer relations people during at least a portion of this period is the space heating high bill inquiry. Whether the heating period is comparatively mild or unusually cold seems to make little difference in the frequency of these inquiries, since it appears that many customers neglect to realize that bill amounts increase with falling temperatures.

From our observations, there are a number of inquiries which have no basis when analyzed. Bills for automatic heating are nominal during the fall months but when the first extended cold spell occurs, the corresponding increase in bill amounts usually brings a surge of inquiries. Customers, who never previously used automatic fuel for space heating, are particularly troublesome since their cost with coal was comparatively high even in the late fall and early spring. The sharp increase in their gas bills in the winter months following comparatively minor consumption in the fall, because of the greater efficiency of gas, prompts many inquiries.

When a warm spell occurs immediately before bills are mailed, many customers fail to recall the extreme cold weather that existed during the billing period. There are those too, of course, who inquire about high bills in an effort to avoid conclusive collection action. Many fail to pay a single winter bill before the inquiry is received. Other inquiries originate from owners of single and multiple dwellings who live elsewhere and who have no control over the setting of the thermostat. Still others are received from customers who have large summer loads and who neglect to consider the non-heating use built into the fall and winter bills.

These are by no means all the reasons for bill inquiries, as utility men well know. Whenever customer relations men meet, this subject becomes a perennial study, as can be expected, for the cost of clerical and field work involved in the placation of customers is of major consequence.

It is estimated that during the six-month period between December, 1960 and May, 1961, the gas industry will process close to a million space heating bill inquiries at a cost of several million dollars. These figures are startling per se, but considering the nominal percentage of field investigations which ultimately prove favorable to customers, they assume even more startling proportions.

With the tremendous increase in the number of space heating customers experienced by Michigan Consolidated prior to and in 1956, and the ever increasing bill inquiries and associated cost, a new procedure was developed for study late in 1956. Prior to that time, the company's practice was to conduct lengthy discussions on bill inquiries and to originate a field investigation almost at the whim of the customer, even when facts indicated that the bill was obviously in order. As time passed, it became apparent that the expense of this liberal policy could no longer be justified by a doubtful customer relations benefit.

An analysis of 25 per cent of our executed space heating inquiries for the 1955-56 heating season furnished the basis for adopting a change in practice which we feel expedited handling of inquiries with little adverse customer reaction and at reduced cost. This study indicated that about one-third of the inquiries came from customers without previous gas heating experience. The remainder emanated from customers who had used gas for space heating for a partial season or longer.

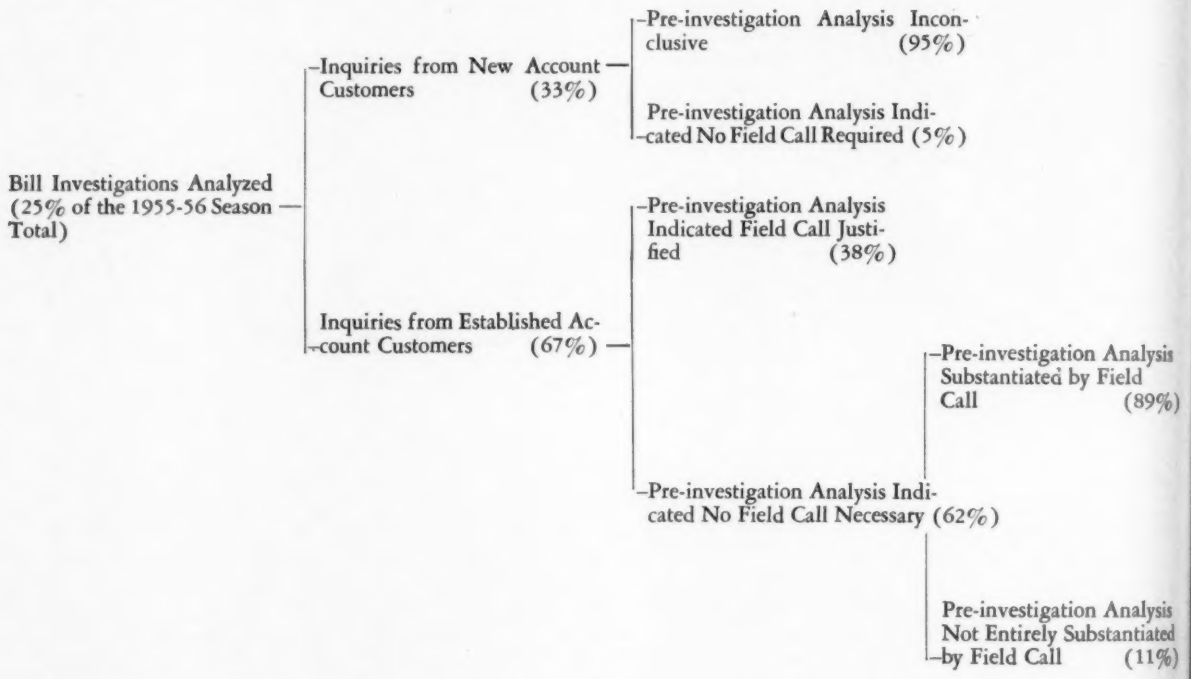
Further analysis of the executed inquiries revealed that it could be determined in advance, with about 90 per cent accuracy, whether an inquiry for an account with prior heating experience required a field call. This was accomplished by having experienced bill investigators analyze consumption patterns of the accounts and draw conclusions as to the necessity for field calls without reference to the actual executions. They then reviewed the executed orders to determine the accuracy of their conclusions.

By comparing the consumption for the bill in question to the prior season's pattern or estimating consumption on the cost per degree day basis, it was concluded that 62 per cent of our bill inquiries definitely did not require field action. In nine out of ten calls on the premises, investigators merely gave ver-

bal explanations to satisfy the customers, while in the remainder, minor mechanical adjustments were made to the heating equipment which, in our opinion, had little or no effect on the overall operating efficiency of the furnace or on the cost of operation.

Contrary to the results of our study of established heating accounts, the new heating customers presented a different problem in that only 5 per cent of the inquiries could have been settled without field calls and the other 95 per cent of inquiries would not have been predeterminable. However, it was noted that in a majority of these inquiries, the new heating equipment was not left in efficient operating condition by the contractor.

A graphic illustration of results of the study may prove more comprehensive:


Bill Investigations Analyzed (25% of the 1955-56 Season Total)
Inquiries from New Account Customers (33%)
Pre-investigation Analysis Inconclusive (95%)
Pre-investigation Analysis Indicated No Field Call Required (5%)
Inquiries from Established Account Customers (67%)
Pre-investigation Analysis Indicated Field Call Justified (38%)
Pre-investigation Analysis Indicated No Field Call Necessary (62%)
Pre-investigation Analysis Substantiated by Field Call (89%)
Pre-investigation Analysis Not Entirely Substantiated by Field Call (11%)

While our principal interest was to reduce field calls, certain other features were built into the new procedure which embodied six major changes from past practice.

1. Where previously telephone and personal interview employees spent considerable time obtaining all pertinent data from company records for detailed discussion with the customer, they were instructed to merely obtain basic information including the name, address, telephone number, the bill in question, the number of rooms and type of heat (warm air, steam, etc.), and to inform the customer that his account would be analyzed and that he would hear from us in a few days.

2. The pertinent previous billing and consumption information was entered on the appropriate bill investigation form by the accounting department personnel, usually without added incremental cost, and forwarded to experienced analysts in the bill investigation department for review.

3. In keeping with the results of the study, inquiries for accounts opened since the previous season were routed immediately for field investigation, as were established accounts for which consumption was obviously out of line with prior years, experience and/or with the degree days accumulated during the billing period.

4. An appropriate form letter explaining that the inquiry had been carefully reviewed by our heating analyst and the bill found to be in line was sent to other customers whose consumption was obviously in order.

5. It was expected that some customers would call again following receipt of of the letter. Interview personnel were instructed to take the position that nothing further would be gained by investigation on the premises, and unless the customer introduces some factor which would seem to justify a noticeable reduction in gas usage when compared with previous experience, no additional action is taken.

6. Insistence that field investigations be made during normal working hours, five days a week, except under highly unusual conditions.

Three major advantages were anticipated as a result of the changes: a substantial reduction in the field activities conducted by high-salaried, well-trained investigators; elimination or drastic reduction of borrowed manpower from the service department during peak periods, and a considerably shorter discussion period in interviews involving space heating bill inquiries.

The success of this new procedure can best be illustrated by the events experienced during the winter of 1958-59. In the month of January, 1959, as a result of 100 per cent increase in degree days over the previous month, 10,273 space heating high bill inquiries were received, an increase of 83 per cent over the same month in 1958. Of these 10,273 inquiries, 8,409 involved accounts with prior heating experience. Seventy per cent of the inquiries were traced to normal consumption increases because of colder weather and were successfully

(Continued on page 28)

GORDON C. GRISWOLD, *CHAIRMAN* • WILLIAM B. TIPPY, *VICE-CHAIRMAN*

Typical workshop "think" session has executives in shirtsleeves

Dr. Robert T. Livingston, workshop's director, outlines basics

At quiet Arden House in New York's Ramapos, problems are solved

A workshop for utility managers

Do you have a problem in human relations? Very likely, if you are a manager. But it's not very likely that you can turn to a panel of scientists for help and advice. Not unless you are a member of the Columbia Utility Management Workshop held each summer at Arden House, high in the Ramapos at Harriman, N. Y.

For 10 years, utilities have been sending executives to the two-week session conducted by Robert T. Livingston, professor of industrial and management engineering, Columbia University. The workshop came into existence through the recognition by a group of utility executives of the need for the development of future managers. Today it is guided by an advisory committee composed of top executives of 10 leading gas, electric and telephone companies.

While the format of the workshop may change over the years, the program still seeks a high degree of individual involvement with far-ranging ideas and mind-stretching concepts. The panel of "experts" on human relations is a case in point. Case histories, discussed and selected by the project groups, are brought before the panel composed of an anthropologist, a sociologist, a psychologist, a psychiatrist, and a social psychologist. These men, each an acknowledged leader in his discipline, bring new insights to familiar situations.

This exercise in human relations is one of four major projects undertaken during the course of the workshop. A brief review of this project, called "The Manager and Effective Behavior," serves to demonstrate how the workshop is conducted.

Groups are formed of 10 or 12 members with staff group leaders, who have been trained specifically for each workshop. Each working group develops its own project on a management problem which is submitted as a group presentation at the end of the workshop. The human relations project, however, begins with a presentation by Professor Livingston and Dr. Goodwin Watson, associate director, on the manager's situations, problems and actions.

Each group then develops its own "case histories." Each case is real, and the person reporting it must know the facts. Some of the cases reported in previous years have been concerned with chronic alcoholism, unpromotable assistants, communication difficulties, family problems and the like.

Each group selects a number of cases which appear to be likely to generate the most interest for presentation to the panel of experts. At an evening session, the cases are presented to the panel of experts, who at this time remain silent. Another panel made up of conference

participants asks questions and discusses the cases in order to further clarify them. The next day the panel of experts discusses each case in turn. One expert leads off by discussing the case in the context of his own discipline, and the others comment on what they see as unique in the case. This fresh view from the outside often casts a whole new light on what appeared to be an obvious situation.

Other projects considered during the workshop are the "Introduction, Method, and Job of the Manager," "The Process of Managing," and the "Growth of Men and Managers." The small groups and their leaders bring their own resources to these projects and are aided, not only by the workshop staff, but by leading speakers who are invited to the workshop.

The keynote speaker at the opening session this summer was Charles H. Whitmore, president of the Iowa-Illinois Gas & Electric Company. His remarks opened the study of the job of the manager. Other speakers at the 1961 workshop included Wroe Alderson, president of Alderson and Sessions, and William J. Ronan, secretary to Governor Nelson A. Rockefeller.

In addition to the working group activities and the four major projects, a number of special seminars are held during the course of the workshop. These seminars, in which participation is voluntary, deal with practical fundamentals. Last summer the seminars were on "Planning for Organization Improvement," "Effective Delegation," and "Relational Problems with Superiors, Peers and Subordinates."

In the words of Dr. Livingston, "The objectives of the Utility Management Workshop are to enable a group of utility executives to study the job of top management in the utility industry and to develop out of their own experience and the experience of other industries workable solutions to the executive training problems in their own companies.

"These men may have taken special courses in or out of their companies, are in positions of responsibility, and are ready to step from the position of technologist, specialist, or upper supervisor, to manager in the real sense of the word, where increasingly their points of view and their responsibility is company, industry, and society oriented as distinguished from a special competence or viewpoint."

Attendance is limited to 36 participants. In 1961, the total cost of the two-week residence program was $1,000, which covered all expenses including tuition, materials, books, room and board.

The chairman of the Advisory Committee, which actively advocates and sponsors utility support of the workshop, is Charles Kohlhepp, president of Jersey Power & Light Company and Jersey Central Power & Light Company.

Other members are Ernest R. Acker, chairman of the board, Central Hudson Gas & Electric Corp.; Harllee Branch, Jr., president, The Southern Company; James Comerford, chairman of the board, Consolidated Natural Gas Company; Earl Ewald, vice president, Northern States Power; John E. Heyke, president, The Brooklyn Union Gas Company; William A. Lyons, president, New York State Electric & Gas Corp.; Earle J. Machold, president, Niagara Mohawk Power Corp.; Donald C. Power, chairman of the board, General Telephone & Electronics Corp. and Walter Sammis, president, Ohio Edison Company.

Accounting

(Continued from page 26)

concluded by form letter. Receipt of 10,273 inquiries in one month would have previously created an almost impossible interview and investigation problem, but instead it was taken in stride with an insignificant increase in manpower. No noticeable unfavorable change in customer reaction was evident.

Prompted by this success, we then turned our attention to the new space heating accounts with the hope of further reducing the field investigations. Based on the premise that it is the responsibility of the space heating contractor to properly install and make initial adjustments to new equipment, it was decided to follow a course similar to that of established accounts. We are now analyzing these inquiries in the office to determine whether the consumption is in line with the size of the home, with the type of heating equipment, and with the weather conditions during the period of billing in question.

If the consumption is in line as described, an appropriate form letter is sent the customer advising him that his bill has been properly computed, that the amount is proportionate to weather conditions and that he may contact his heating contractor if he feels that adjustments are necessary for more efficient and economical operation. When conditions reported to the interview clerk by the customer indicate that the consumption may be abnormal, a field investigation is initiated.

While we are certain that our present practice in processing bill inquiries is an unqualified success, we have not completely converted the results to actual cash savings. We do know, however, that the extreme difficulties formerly experienced in our interview departments during the space heating high bill inquiry months are now reduced to orderly busy periods with a minimum of assistance from other departments. Interoffice telephone calls, formerly required to obtain information necessary for interview personnel to conduct discussions with the customer, have been eliminated. The time required to conduct interviews, whether personal or by telephone, has been substantially reduced, permitting accelerated availability of personnel and telephone lines for other types of inquiries.

While the number of high bill inquiries received has steadily increased in proportion to our growth in heating customers, we have been able to meet the demand with no increase in man hours. The extremely low volume of repeat inquiries leads us to believe, after three years of experience, that our current method of processing bill inquiries is generally satisfactory to our customers.

Industrial relations

(Continued from page 14)

from the date of the occurrence causing the complaint or grievance, except in cases where report of a grievance has been suppressed through coercion by the employer."

This clause was solid enough to give the Washington Supreme Court the authority to throw out a lawsuit brought by an employee to collect back wages owing under a union contract. The employee (a grocery clerk) had been paid less than the wages called for by the contract. But he hadn't presented his grievance in writing in the prescribed time. The court, a stickler for procedure, took a dim view of it:

"A plaintiff, in order to maintain an action on a contract, must have complied with the conditions precedent contained therein. That is, a breach by a plaintiff of a material condition precedent relieves a defendant of liability under a contract. In his complaint, the appellant makes no claim of coercion, nor does he assert any excuse for non-compliance with the agreement. A requirement that grievances be submitted in writing within 90 days is not against public policy."

Builder-Architect
AMERICAN GAS ASSOCIATION
FACT SHEET
SCHOOL GAS HEATING AND VENTILATING
ACCOMPLISHED:
UNIQUE ARCHITECTURAL FEATURES
Three Buildings, Three Different Systems
New school saves $18,000 in first cost with GAS-fired NORMAN SCHOOLROOM SYSTEMS

Promotion-in-depth plan gains

The A. G. A. Promotion-In-Depth program has proved so successful during its first year of operation that it is being expanded during 1962.

Originally the program was inaugurated to provide promotional assistance in the heating and air conditioning field, with emphasis on school installations to combat the aggressive actions of competing fuels. The program has now proved its value in the school field and is presently being extended into all industrial and commercial markets. A. G. A. expects the expanded, cooperative program to be a major promotional tool for the industry.

Promotion-In-Depth is a five-point program to obtain—for a minimum expenditure—literature for gas utility sales personnel, copy material for gas-promotion advertisements, and nation-wide distribution of feature articles for the gas industry.

The program begins with a writer from A. G. A.'s agency, Ketchum, MacLeod & Grove, visiting an unusual or outstanding installation of gas equipment to obtain details and photographs for a trade magazine article. Stories have appeared, for example, in *Architectural Record, Consulting Engineer, Nation's Schools, Buildings,* and virtually all the heating and air conditioning magazines.

These articles are reprinted. The reprints are made available to utilities and gas appliance manufacturers, at A. G. A.'s cost, to be used as direct mail pieces and salesmen's literature. No matter what the job—from air conditioning the Reynolds Building in Detroit to converting a boiler in an eight-room Pennsylvania school—there is a

reprint of a case history detailing how and why it was done better with gas.

The same information and pictures which go into a particular story are then made into a "fact sheet," printed in large quantities and again available as sales literature for interested companies. While basically the same story is told in a fact sheet, its presentation is more condensed and carries a more direct sales message.

Copies of the story and the fact sheet, containing all the pertinent data of the particular installation, are turned over to A. G. A.'s advertising forces. Many of the A. G. A. advertisements which appeared during 1961 were based on illustrations and information gathered to produce case history stories. Preprints and reprints of the ads are again made available at cost to utilities and others for promotional mailings.

More than 50 such stories were completed during the first year of the Promotion-In-Depth program. Several fact sheets and a dozen major reprints and advertisements were prepared from these articles. Over two dozen clippings of feature articles covering almost as many states were in the files, and more arrive weekly.

The success of the program has prompted A. G. A. to offer participation to its members on a cooperative basis.

There are, actually, 10 ways in which manufacturers can benefit from participation in the A. G. A. Promotion-In-Depth program. The program can:

1. double the budget available to the manufacturer for advertising, publicity, public relations, promotions and literature;
2. cut the per-unit cost of any promotional medium by taking advantage of A. G. A.'s volume production of ads, reprints and all other forms of sales aids;
3. enlist the facilities of utilities throughout the country to help publicize and/or sell the manufacturers' products by supplying wanted sales pieces;
4. create a more favorable impression of the manufacturer among customers and potential customers through this close association with the A. G. A.;
5. gain the good will of present customers or sell a prospective customer by offering nation-wide publicity for him, his company and his products;
6. present a balanced, continuous message concerning a manufacturer's product in a variety of ways designed to make the greatest impact on buyers;
7. lessen the price of each facet of a promotional program by using the same information in a number of ways, thereby deriving maximum use of data;
8. place at the disposal of the manufacturer the combined facilities of A. G. A.'s advertising and promotional personnel and its highly rated ad agency;
9. allow a manufacturer to step immediately into an existing program which has completed its organization and has proven to be a smooth, successful operation;
10. support a manufacturer, in league with other manufacturers and A. G. A., in presenting an overall promotional plan to further gas over competing fuels.

Since the promotion of gas-burning equipment is promotion for the entire industry, and vice versa, any leads which can be furnished by readers will be given consideration as the basis for a P.I.D. feature story. If you know of a gas equipment installation in your area you believe would be of interest, write to Ral Murray at A. G. A., and your lead will be given consideration as the topic of a future article.

Mr. Murray also will be happy to provide samples of Promotion-In-Depth material available and prices upon request.

Gas reserves

(Continued from page 22)

have been experienced in recent years.

As more gas utility and pipeline systems enter into these long-term contracts at prices which will stimulate producers to continue their search for additional reserves, prices will reach a relative stage of stability.

There is no doubt that the long-term trend in both oil and coal prices will be upwards. The increasing industrialization of the so-called "backward" countries of the world, coupled with the tremendous increase in population and the ensuing demands to satisfy human wants, will increase the demand for both fuels. With the laws of supply and demand operative, it is evident that pressures will be exerted to increase the price of oil and coal in the future. This world-wide demand will naturally affect prices in our country. In addition, in the case of oil, it will also have a tendency to reduce the amount available for import into this country.

TABLE III

NEW WELL COMPLETIONS, BY TYPE OF WELL

Year	Total	Oil	Condensate	Gas	Dry	Service
1st 6 Mos. 1961	22,778	10,267	502	2,225	8,270	1,514
1960	21,356	10,043	658	1,657	8,386	612
1959	24,367	12,399	602	1,773	8,972	621
1958	22,988	11,385	563	1,706	8,801	533
1957	25,761	13,567	222	1,878	9,549	545
1956	28,838	15,608	267	1,911	10,564	488
1955	27,696	15,743[a]	a	1,643	9,901	409

a. Includes condensate wells.

TABLE IV

NEW WILDCAT WELL COMPLETIONS, BY TYPE OF WELL

Year	Total	Oil	Condensate	Gas	Dry
1st 6 Mos. 1961	4,409	375	50	197	3,787
1960	4,708	417	50	151	4,090
1959	4,517	450	63	135	3,869
1958	4,556	435	74	144	3,903
1957	5,814	710	—	238	4,866
1956	6,301	843	—	205	5,253
1955	5,840	883	—	177	4,780

Safety conference

(Continued from page 7)

porting through discussion of "Z16.1—Its Use and Abuse," by H. G. Miller, director, statistics divisions, National Safety Council.

Defining the code and tracing its history from the initial concept in 1912, Mr. Miller emphasized the need for an American Standard for reporting all accidents in all industries.

This need was answered in 1937 with adoption of the Z16.

The code was revised in 1945 and 1954 and reaffirmed in 1959. At the present time the code is scheduled for review and will be revised or reaffirmed by a committee composed of representatives of 33 industrial groups. Each member of the committee will have the opportunity to inject his thoughts.

From the different thoughts and opinions, the code will become a compromise between groups. Because it is a compromise of all industries, the Z16.1 is stated in general, rather than specific, terms.

Reviewing the gas industry employee safety record, Mr. Miller said:

"The standings which you publish and the accident reduction rates which are published have meaning, because all companies are following a single standard for reporting.

"Z16.1 provides a standard for comparing one company against another and one industry against another. Without a standard form for reporting for all companies and all industries, rates would vary and any comparisons would be meaningless.

"Most of the problems connected with the standard arise out of ignorance," according to Mr. Miller.

Comments on reporting accidents included the following:

If company had no control over the accident, it still must be evaluated.

The standard is unconnected with workmen's compensation.

Injury is included if it arises out of employment and results in the loss of a full day or permanent impairment.

A review committee will evaluate cases that company cannot. When five or more members of the committee fail to agree by letter vote, the cases are held over for a committee meeting and further discussion before rendering a decision.

Stressing the fact that Z16.1 has no connection with workmen's compensation, Mr. Miller stated:

"Fifty states have 50 different workmen's compensation laws. No two are exactly alike. Because they vary from state to state, national statistics based on workmen's compensation would be meaningless."

It was also noted that 14 states now classify accidents under both workmen's compensation and Z16.1.

Safety in Russia

S. J. Cunningham, senior research engineer, American Gas Association, gave a summation of his observations on the gas industry in Russia with one word—nyet!

"They just didn't seem to know what we were talking about when we pursued safety," he stated.

Prior to his tour of Russia, Rauel Papich, A. G. A. safety manager, briefed Mr. Cunningham on safety things to look for while in the Soviet Union.

Using an outline provided by the safety manager, Mr. Cunningham commented on management leadership:

"Management gives no great evidence that they were really interested in an employee safety program. The various supervisory personnel never volunteered any safety information."

On assignment of responsibility:

"Each area has a safety man. This safety man tours in his area and observes any unsafe practices. This is what they told us. We never met the man; we never saw the man."

On maintenance of safe working conditions:

"There is no such thing as safety clothing. There are no hard hats; there are no hard-toe shoes. There is complete and utter disregard for personal safety in industrial buildings, as well as offices. Stairs are uneven, chipped, broken and in bad repair. Bannisters and handrails hang loose or are non-existing. Floors are rough and uneven. At compressor stations, ladders and platforms were in horrible condition. In the drilling fields, mud was allowed to accumulate on the floor of drilling rigs creating dangerous conditions. Pipeline welders had no face masks; goggles were all that were required."

On safety training:

"There are safety committees, safety courses and safety manuals—so we were told. But, we didn't see any of them, and there was absolutely no evidence of them."

On accident record system:

"They don't have accidents. Why? It just isn't the thing to do. Thus, there is no system for reporting accidents."

On medical and first aid systems:

"If you don't have accidents, you don't have to have medical or first aid on the scene. But for 'non-existent injuries' they get free treatments."

As an example of the items mentioned in the outline, Mr. Cunningham presented his observations of a plant producing gas turbines for use in driving gas compressors:

"It was a large plant—not a modern plant—but a large plant. We didn't see the whole plant; we saw just one section making the gas turbines. The housekeeping was such that, even now looking back on it, I don't trust my memory—steel shavings, boxes and carts, overhead cranes, lathes, all sorts of tools just operating as though there was no such word as safety. I don't know when they clean up their plant—perhaps never.

"Throughout the plant, machines were working with no apparent regard for safety. There were unguarded drives on machinery, absence of any type of personal protection, and overhead cranes were swinging large pieces of castings, casings, turbine rotors, all without bells or warning devices."

In conclusion, Mr. Cunningham said: "Safety programs in Russia can be summed up in one word, nyet—almost non-existent."

New audio-visual aids produced for the gas industry by the A. G. A. Accident Prevention Committee presented at the Tuesday General Session included:

Safety flipchart #12, "Read 'Em Safely"

35mm color sound slide film, "Warn, Guide, Protect"

35mm "quickie" film, "Load Binders and Lever Hoists"

A summary of conference workshop sessions was presented on Tuesday afternoon by B. J. Lorenz, chairman, A. G. A. Accident Prevention Committee, and J. A. Hickey, chairman, Southern Gas Association, Accident Prevention Council.

During the conference, delegates were given special opportunities to visit the Safety Ideas, Devices and Materials Exchange Display. The exhibit contained material and ideas used in safety programs of more than a score of gas companies.

Plastic meters

(Continued from page 16)

months duration to check for moisture absorption.

- Flammability tests to determine whether the material will support combustion and, if it will, to what degree.
- Torque test on screw inserts in the plastic housing to determine the torque required to cause failure of the insert for holding the cover to the body.
- Impact tests at all temperature ranges to determine the degree of resistance to hard use and abuse.
- Immersion of test pieces in appropriate alkaline environment to check for alkali resistance.
- Permeability tests.
- Soil tests in which meters are immersed in soil samples from two or three states for 12 months at a time.
- Tests to determine resistance to micro-organisms such as mold, insects, rodents and bacteria.

Some remaining problems

Many formulations of resins and combinations of resin and fill material have passed many of the tests satisfactorily. None on which testing and evaluation have been completed has met all the specifications to date. Problems remain.

For example, one important problem which must be solved is the alteration in surface appearance of the polyester or phenolic after extended exposure to weather. This may not affect the weather tightness or water resistant qualities but results in a not unattractive "furry" appearance. What happens is that, after 2,500 hours of exposure, the surface resin has a tendency to recede and expose to view the glass fibers which are near the surface.

This problem might be overcome in one of two ways: either through an additional coating over the finished meter case of a good epoxy or acrylic plastic paint, both of which give excellent weather resistance, or through development of a polyester which will resist even this minor surface alteration.

Because the epoxy or acrylic would add material and labor cost to the cover, perhaps prohibitively, efforts are currently fixed on finding a better glass-resin combination. In fact, a new, pre-impregnated glass fiber currently being evaluated may hold the answer.

Another problem is manufacturing practicality.

The problems attendant to manufacturing a plastic gas meter case are not so much those of how to do it, but rather how to do it economically and in volume.

A gas meter housing is a difficult product to mold because of the variations between required thin and thick sections. The process involved is gunk molding or pre-mix as opposed to the more tedious hand lay-up process. In the latter, glass materials are sprayed onto a form, partially cured and then placed in a curing press where the resin mix is poured over the formed glass mixture. In gunk molding, all materials —impregnated glass and resin—are mixed ahead of time, thus eliminating the hand lay-up step. The gunk or pre-mixed material is simply placed in the mold and formed through application of heat and high pressure.

Some sustaining qualities

The potential advantages of a plastic housing for the gas meter are sufficient reason to go ahead regardless of the problems, in the confidence that the latter can be solved, and bearing in mind that:

- In manufacture, aluminum meters require many machining operations—plastics require few.
- Plastics are the most corrosion resistant materials available. They are the answer to the alkaline soil action in the west which corrodes through some metal meters in a year's time. They resist (as does aluminum) the industrial and marine atmospheres that rust tin and cast iron in the east and mid west.
- Plastics are relatively unaffected by fungal attack.
- Extremely high ratio of impact strength to weight for reinforced plastics is more than sufficient to meet requirements (glass fibers are stronger than steel).
- A great attraction of plastics is their characteristic of non-conductivity (this has already been partially utilized by incorporation of plastic insulating swivels in current Rockwell gas meter models).
- Maintenance costs are low to the point of being negligible.
- Plastics lend themselves to more attractive designs and a wide range of permanent colors.
- Plastics will not conduct sound as readily as metals—therefore a quieter meter is possible.
- Their light weight provides ease of handling and cost saving in shipment.

But the overriding consideration, which involves substantially all the above advantages, is that the plastic gas meter, if and when it meets the rigid standards demanded by the gas industry, will have far greater longevity under all atmospheric, weather and soil conditions, and it will be universally applicable.

A totally new design

Our aluminum meters already contain a significant number of plastic parts. They include:

Special phenolic material for valves
Nylon gears, guides and bushings
Delrin diaphragm brackets

In addition, Delrin is being evaluated for other components of the Rockwell gas meter.

But with the evolution of plastics, an entirely new gas meter design is on the horizon.

Development and evaluation of a plastic for gas meters is currently directed along the lines of existing designs. However, these designs were evolved with metals in mind, and the characteristics of metal stamping, sand casting or die casting had to be considered in designing the meter case.

Once an acceptable and economical plastic was found, designers could get busy on a totally new concept of gas meter design, a concept which could very well affect the total mechanical structure of the meter, as well as the exterior. It is conceivable that a more compact, as well as lighter weight meter, would result with even more of the internal working parts made of plastic.

How far off the plastic meter case is, is a moot point. Our team of chemists is optimistic about the prospects, but a definite deadline cannot be set for achieving this goal.

Materials are being evaluated now which offer great promise. But, as was the case with every other prospect, the material—another fiberglas reinforced polyester formulation—is being thoroughly tested for every necessary qualification. The answer won't be known for some time. Following laboratory and weathering tests, extensive field tests will be necessary before we will accept the new material as practical for manufacture and something that will meet the gas industry's high standards.

GAMA report

(Continued from page 23)

gas resources by tapping gas-rich countries that now lack adequate markets.

Frederic O. Hess, president of the Selas Corp. of America, Dresher, Pa., and former GAMA president, said the future of industrial gas usage is being governed by "inescapable trends" toward better materials, the need for higher yields or greater efficiency, and five-day-week industrial operation.

"Improved materials are required to suit the demands of space technology," Mr. Hess said. "In this connection, rare metals will have to be produced under such precise control conditions that gas atmospheres will have to be governed strictly in the processing room as well as in the furnace."

Gas in industry

Gas already is playing an important part in processing materials involved in meeting stringent longevity and safety requirements for consumers, he said. Mr. Hess, who was recently named a member of the committee on new frontiers of technology of the U.S. Chamber of Commerce, predicted that further processing improvements soon will make it "more practical" for manufacturers to issue one- and two-year guarantees on automobiles and five-year warranties on domestic appliances not already covered by such protection.

Labor costs, international competitive pressures and investment costs are other factors that will spur improvement of gas technology, Mr. Hess said.

He pointed out that a one per cent higher yield by the steel mills would represent more than a million tons a year. To produce a million tons normally would require an investment of $400 to $500 million, Mr. Hess said.

At least five per cent of steel production now is lost by scaling, he said. Gas processing temperatures and cycles involving gas equipment will have a salutary effect on the output, not only of steel but of petrochemical and petroleum products as well, he predicted.

Yields in these industries can be increased by hydrogenation, said Mr. Hess. He forecast that hydrogen demand for this purpose will increase at least five-fold in the next 10 years and pointed out that natural gas is the principal raw material in low-cost hydrogen.

Universal use of gas processing to produce steel by direct reduction of iron ore seems likely within a few years, he said. This will eliminate the blast furnace, require large quantities of hydrogen and change a seven-day-a-week continuous process into an interruptible five-day-week process. Other procedures, like glass melting, kiln firing and petroleum processing, will undergo similar change, said Mr. Hess. He added that this would lead to virtual elimination of week-end work and "premium" wages.

The following statistics account for gas transmission and distribution progress between 1940 and 1960 and are projected to 1970 on the basis of studies made by the American Gas Association:

GAS DISTRIBUTION AND TRANSMISSION
1940-1970

	1940	1960	1970
Total Customers	17.6 million	33.1 million	44.3 million
Residential	16.4 million	30.4 million	40.1 million
Commercial	1.1 million	2.5 million	3.4 million
Industrial and Other	81 thousand	178 thousand	240 thousand
Residential heating & cooling	NA	20.7 million	33.7 million
Total sales (therms)	17.2 billion	92.9 billion	165.2 billion
Residential	5.8 billion	31.9 billion	57.0 billion
Commercial	1.6 billion	9.2 billion	19.6 billion
Industrial and Other	9.8 billion	51.8 billion	88.6 billion
Total Sales Revenues	$871 million	$ 5.6 billion	$12.0 billion
Residential	$573 million	$ 3.2 billion	$ 6.2 billion
Commercial	$112 million	$723 million	$ 1.8 billion
Industrial and Other	$186.5 million	$ 1.7 billion	$ 4.1 billion
Gross Plant Investment	$ 4.5 billion	$ 21.5 billion	$48.2 billion
Miles of Main (including pipelines)	287,100	632,130	924,200
Heating and Cooling Sales (therms)	NA	21.5 billion	39.9 billion
Natural Gas Marketed Production (Cubic Feet)	2.7 trillion	13.1 trillion	18-22 trillion

NA—Not Available.
NOTE: The figures above do not include those of the "bottled" gas industry which now serves nearly 10,000,000 customers.

Advance Home

(Continued from page 3)

thermostatically controlled gas water heater delivering water at 180° through radial wash arms to complete a washing cycle in 32 minutes. It is designed to fit into a built-in cabinet arrangement.

The plumbing-less toilet is LaMere Industries' "Destroilet." Using gas as a fuel, the appliance converts waste matter at high temperature into odorless carbon dioxide, water vapor and a slight ash residue. Dependable safety features are incorporated. The appliance is self-contained, requiring no plumbing or septic system.

The infra-red patio heater, also made by Bruest Company, operates on the same principle as the infra-red gas oven. It can warm people in outdoor areas, because its rays affect only solid objects, not the air around them. A swivel burner mounted on a permanent stand is connected to a gas outlet, like Bruest's portable barbecue, by a plug-in coupling.

The infra-red wall heater is Siegler Heater Company's "Solaroid" unit, designed for easy installation. It may be either vented or unvented, recessed or attached, and operates automatically. In the Advance Home, it is used as a bathroom heater.

The gas refrigerator is Norge Sales Corporation's model. Its features include automatic ice maker, automatic defrosting of refrigerator section, separate freezer compartment, moist-cold section for fresh food storage, and glide-out shelves.

The gas air conditioner is Bryant Manufacturing Company's add-on unit for use with existing heating systems. In the Advance Home, it is coupled with a gas thermoelectric furnace.

The whole-house humidifier, by Lennox Industries, Inc., likewise is coupled to the gas furnace. The size of a small suitcase, the Lennox unit can put up to 18 gallons of moisture into house atmosphere in a day.

Thermoelectric power, by means of a type of generator made by Minnesota Mining and Manufacturing Company, is a feature for which the gas furnace of the Advance Home was designed, to be installed when available. The unit powers the furnace blower fan, and perhaps other electric appliances, with current generated by gas heat from the furnace itself.

World's Fair

(Continued from page 10)

vantages and none of the disadvantages of the conventional patio.

Air curtains will make it easy to achieve the uninterrupted flow of nature into the home which designers and architects have long sought. A bed of flowers can start in the garden and continue right into the living room.

In the model of the gas industry's building, for example, landscaping—including a brook—flows into the building to become part of the interior decor.

Industrial applications stressed

Using air as an enclosure of space, industrial plants, stores and commercial establishments will be able to "spot cool" sections of large areas which were impossible to air condition previously. Air streams will also be able to enclose heat produced from modern gas systems in work areas of giant plants and commercial buildings.

It may even become possible to give relief to commuters and other travelers on trains and buses by using a combination gas "weather-making" system on station platforms. Air curtain walls operating from the roof to platform could contain the heat or cold air without presenting any barriers to movement. This method could also be used to cool or heat strategic sections of large stations.

Stadiums and amphitheaters with roofs might give some measure of comfort to patrons through the use of air curtain walls without restricting either baseballs or the sound of music.

"The gas industry exhibit will incorporate many functional innovations we believe will influence home design to an even greater extent than the developments we introduced at the 1939 Fair," according to William G. Hamilton Jr., vice president of Gas Inc. and president of the Gas Appliance Manufacturers Association.

Mr. Hamilton, who also is president of the American Meter Company, recalled that the 1939 Fair helped introduce gas househeating to millions who visited the gas building.

"Today," he pointed out, "gas heats more homes than all other fuels combined, and the number of major tasks performed in the home by gas has increased from four, which were featured in the 1939 exhibit, to seven."

A feature of the main exhibit area, where gas appliances and equipment of the future will be displayed, will be a moving ring 110 feet in diameter which will take the visitor on a four-minute tour of the hall. As the ring rotates 10 feet above the floor, the visitor will get a preview of the displays, before taking a close-up look at the things which interest him the most.

Mr. Teague said the design of the pavilion extends beyond spectacular showmanship. He pointed out that this "is a vital consideration for successful exposition design but, when combined with valid and continuing technological concepts, it constitutes a far more meaningful contribution which inevitably reflects great credit on the sponsoring industry."

Lester T. Potter, president of the American Gas Association and of Lone Star Gas Co., Dallas, noted that the $6 million exhibit represents a united effort by gas distributors, pipeline companies, gas appliance manufacturers and liquefied petroleum gas companies "to project the gas industry into tomorrow."

"This building will tell the story and predict the future of the industry in the most dramatic and realistic terms," Mr. Potter said.

Chester S. Stackpole, managing director of the American Gas Association, said the exhibit would present the most advanced developments of the nation's sixth largest industry.

"The building itself will be the outstanding example of the importance of gas to our future," Mr. Stackpole said. "Every material and item in the building will have been touched by gas at some stage of its manufacture," he explained.

Harold Massey, managing director of the Gas Appliance Manufacturers Association, said gas appliances for the home and industry will be displayed to give the Fair visitor a preview of what the future holds.

"Gas appliances shown at the Fair will be those now being developed in our industry laboratories for tomorrow's living," Mr. Massey said. He noted that the exhibits will show appliances for all seven major uses of gas: heating, air conditioning, water heating, waste disposal, cooking, refrigeration and laundering.

Among the major displays will be the gas "weather-making" equipment which will be actually in use to keep the building cool or warm despite outdoor temperatures and the fact that many of the walls will be of air.

In addition to the exhibit area and restaurant, the 40,000-square-foot building will contain offices for the Gas Inc. staff and facilities for industry executives and the press. These will be located in an elevated area high off the main exhibit floor. They will be supported by slender columns, adding to the feeling of lightness that is expressed throughout the building.

Manager of the exhibit will be Stanley B. Finch, executive secretary of Gas Inc.

Construction of the building will be coordinated by Walter Dorwin Teague Associates. Clarke & Rapuano are the landscape designers, Purdy & Henderson are the structural engineers and J. S. Hamel Engineering, Inc. is in charge of mechanical and electrical engineering.

Gaslit airport

(Continued from page 13)

mission line to avoid their being accidentally run over. Should they be hit, however, each fixture was connected to the transmission line with a four-foot coil of copper pipe, which should absorb the impact without tearing loose.

Plateau automated the system with a solenoid valve actuated by an electric photocell mounted on the administration building. As the sun sinks, the photocell registers the falling light level and opens the valve, which in turn jets more gas to the lights, gradually bringing them to full brilliance. Manual operation is provided by a ½-inch by-pass line.

Plateau was recently assured of its installation's success when Syracuse airport authorities asked for more lights and lines, to continue gas-fired lighting down the length of a projected runway.

Blanket-o-flame

(Continued from page 19)

building won't be completed until late in 1961, the developers already are planning two more of the same size in other locations. Designed by David Termohlen, Tamerlane provides 20 two-bedroom apartments and two luxury penthouses. Heating and cooling will be provided in each residential unit by a central gas air conditioning system.

Industry news

Research on hydrogasification of oil reported

RESULTS OF a new approach to the production of natural gas supplements from oil are presented in Institute of Gas Technology Research Bulletin Number 29, *High Pressure Hydrogasification of Petroleum Oils,* by E. B. Schultz, Jr., and H. R. Linden.

Under the sponsorship of the Gas Operations Research Committee, under the PAR Plan of A. G. A., the process involved the destructive hydrogenation (hydrogasification) of distillate, crude and residual petroleum oils to produce natural gas equivalents.

Gases of 800 to 1000 Btu/SCF, and composed mainly of methane, ethane, and unreacted hydrogen, were produced in a continuous tubular reactor at 500 to 1500 psig, 1400° F maximum temperature, and hydrogen feed rates corresponding to the chemical requirements for converting all of the feed oil to methane. About 90 weight per cent of the feed oil was gasified, and the remainder was converted to low-boiling aromatics, mostly benzene.

Distillate oils were fed directly, but residual and crude oils had to be upgraded before hydrogasification by treatment with hydrogen over cobalt molybdate catalyst to reduce their coke-forming tendency. At 850° F, the maximum temperature for reasonable catalyst life, separation of the highest boiling fraction from the pretreated lower grade oils was also necessary. However, recycle of this residue fraction was feasible.

Copies of the research bulletin (Catalog No. 52/OR) are available at $5.00 each from the Order and Billing Department, American Gas Association, 420 Lexington Avenue, New York 17, N. Y.

NJGA meets, elects Hugh L. Wathen president

THE NEW JERSEY Gas Association observed its 50th anniversary by honoring six past presidents at its 46th annual meeting at Spring Lake, N. J., Sept. 6.

Hugh Wathen, vice president of South Jersey Gas Company, was elected president, succeeding W. Daniel Williams, vice president of New Jersey Natural Gas Company.

Other officers elected were: Calvin R. Carver, City Gas Company, first vice president; Ernest R. Weeks, Public Service Electric & Gas Company, second vice president, and Walter C. Money, Elizabethtown Consolidated Gas Company, secretary-treasurer.

The six past presidents, all retired, were presented with honorary memberships and with certificates citing their years of service to the industry. The six, and their terms of presidency, are: Howard A. Stockton, 1928-29; Robert A. Koehler, 1929-30; Earl J. Menerey, 1934-35; Frank H. Darlington, 1940-46; Preston D. Gardner, 1946-47, and H. Whitcomb Nicolson, 1956-57.

Gov. Robert B. Meyner was guest speaker, and urged the 350 gas men to promote the state. He noted New Jersey's population has increased more than New York's or Pennsylvania's since 1950. "I don't think there is any better indication of our growth and progress than the 1960 census," the governor remarked.

Julius Klein, president of Caloric Appliance Corporation, spoke on "A Golden Anniversary—Its Challenge and Its Reward." Mr. Klein urged greater attention to the replacement market for cooking appliances, and said that antiquated appliances now in use are giving the industry a "black eye."

Gas flame is symbol of jet age airport

An eight-foot gas-fired "Flame of Freedom" burns 24 hours a day at Los Angeles International Airport's new $70,000,000 jet age terminal. George Babbe, southwest division manager, Southern California Gas Company, left, and H. C. Ley, sales manager, flank flame at new administration building

Bailey is PCGA president

W. J. BAILEY, president, Day & Night and W. Payne Company, La Puente, Calif., has been named president of the Pacific Coast Gas Association for 1961-62, at the Association's 68th annual meeting.

Mr. Bailey received his president's gavel from H. G. Dillin, president, San Diego Gas & Electric Company, outgoing PCGA president.

Also elected PCGA officers for the coming year were: first vice president, S. L. Sibley, vice president and general manager, Pacific Gas & Electric Company; second vice president, Alan R. Bailey, executive vice president, Southern Counties Gas Company; treasurer, L. W. Coughlan, comptroller, Pacific Gas & Electric Company.

Newly elected as directors for two-year terms were: Frank Breckenridge, executive vice president and general manager, O'Keefe & Merritt Company; Ralph J. Phillips, vice president, sales, San Diego Gas & Electric Company, and J. L. Liecty, treasurer & assistant secretary, Arizona Public Service Company.

Seminar studies rental plan

THE GAS INDUSTRY has a large and fast-growing stake in the commercial gas water heater market, and the increasing number of utilities that are setting up rental programs is proof of the effectiveness of this heavy-duty appliance as a load-builder," said S. F. Wikstrom, director, PAR Plan of the American Gas Association, at a recent Ruud seminar in St. Paul, Minn.

The seminar was held for executive personnel of Minnesota gas companies and sponsored by the Northern States Power Company, the Minneapolis Gas Company, the Northern Natural Gas Company, the Montana-Dakota Utilities Company and the Goodin Company, state distributor of Ruud residential and commercial gas water heaters.

The seminar marked the first full year of operation of the Ruud commercial gas water heater leasing program of the Goodin Company. According to K. M. Thompson, manager, special products department, in the first year, Goodin leased commercial gas water heaters, which it is estimated have added 11,680,000 cubic feet of natural gas to the lines of the two utilities in the Twin-Cities leasing area. It's expected that, as the program becomes better known to the public, plumbing contractors and utility personnel, leasing sendout figures will be substantially higher.

Gas is featured in 'Herald Tribune' color supplement

ON SEPTEMBER 17th, 1961, the *New York Herald Tribune* published, with the cooperation of the gas industry and the assistance of A. G. A. and GAMA, its second annual color gravure supplement *Modern Living with GAS—1961.* In both editorial and advertising content, the 24-page gas supplement was devoted to a comprehensive presentation of the newest in gas heating equipment and gas appliances.

Four utilities in the Greater New York-New Jersey area were advertising participants with individual full pages in color: The Brooklyn Union Gas Company; Consolidated Edison Company of N. Y., Inc.; Long Island Lighting Company, and Public Service Electric and Gas Company of New Jersey.

These utilities will distribute house-to-house to their gas customers, two thirds of more than 300,000 extra copies of *Modern Living with GAS—1961.* 100,000 supplements will be distributed by forty gas companies in other cities from Anchorage, Alaska, to Beaumont, Texas.

Orders for reprints will be filled by the *New York Herald Tribune* at $26.50 per thousand. Single copies will be mailed to GAMA and A. G. A. members. Copies were also to be made available at the A. G. A. convention.

Texas Eastern builds

TEXAS EASTERN Transmission Corporation is starting construction on new facilities authorized by the Federal Power Commission.

The program is designed to increase daily delivery capacity of Texas Eastern's natural gas system by 225 million cubic feet, and will require construction of a new pipeline across north Louisiana into Mississippi, construction of one new compressor station, addition of compressor horsepower at several other stations, construction of numerous loop and lateral pipelines between Kosciusko, Miss., and Lambertville, N. J., and necessary metering and regulating facilities, the announcement said.

It is anticipated that the first phase of the construction will cost approximately $48 million with the cost of the entire project expected to reach about $85 million.

Utilities serve elderly

HOUSING FOR SENIOR citizens is receiving attention from gas utilities on the west coast.

Northwest Natural Gas Company, under the direction of C. R. Holloway, Jr., vice president, marketing, this summer assisted in the kickoff of a huge selling program for a mammoth housing development for the aged, and Southern Counties Gas Company is serving a new 230-ton capacity gas air conditioning system at a large senior citizens' residence in Duarte, Calif.

Northwest extended its service from an adjacent community so that the entire project, Woodburn Senior Estates, could have natural gas for service.

Southern Counties is supplying fuel to a York EK-24 lithium bromide absorption unit, which provides a comfortable climate for 175 elderly residents of Royal Oaks Manor.

Gas dryers now double as hair dryers

Norge Sales Corporation has come up with an accessory to its gas dryer that can put "not just one but two gas using appliances" into the consumer's home with one sale. The new item is a beauty-salon-type hair dryer that can be used at home by simply attaching it to any Norge gas dryer

Snow will go with gas

A NATURAL GAS-FIRED snow removal system will be clearing the sidewalks this winter around the Citizens Savings and Loan Building in Tiffin, Ohio.

According to information from the Columbus Group subsidiaries of the Columbia Gas System, Inc., the system will melt snow and ice in 30 to 90 minutes, depending on the amount that has collected on the surface of the concrete.

Water heated in an eight-burner Hydro-Therm gas boiler is circulated by a series of pumps through pipe embedded in the sidewalk. Heat radiated from the pipe warms the sidewalk, causing snow and ice to melt.

The water contains an anti-freeze agent and a rust inhibitor to prevent freezing or corrosion of the line. As a result, the system can be turned on and off without threat of damage to the pipe.

Team sells gas lights

THE GAS Service Company of Kansas City, Mo. has a sales team—Jack Adams and Thomas McKee—that has sold 1,763 gas lights since 1958.

Jack Adams attributes his record of 1,025 gas light sales to new residential developments, contacts through community organizations, and tips from company servicemen.

Thomas McKee made his record of 738 through a clientele developed over 25 years of sales work. Mr. McKee also believes that the fact that he himself is sold on gas lights has helped him considerably.

ASME to talk fuels

THE FUELS division and the Mid-Jersey section of the American Society of Mechanical Engineers will sponsor a fuels symposium at Rutgers University, June 5-7, 1962.

The theme of the conference will be "Fuels—Their Status Today," and the entire program will be organized by William T. Reid, chairman of the symposium and past chairman of the ASME fuels division. Mr. Reid is associated with Battelle Memorial Institute in Columbus, Ohio.

All conventional fuels plus the "exotic" types will come under discussion.

Utility reduces rates

NORTHERN NATURAL Gas Company of Omaha has informed the Federal Power Commission that it will adjust its rates to compensate its customers for a projected minor reduction in the heating content of its natural gas.

The rate reduction would be caused by the removal of liquefied petroleum products contained in the main gas stream transported by the company.

Northern Gas Products Company, a wholly-owned subsidiary, will remove and process the natural gas at an extraction plant at Bushton, Kansas. This plant, when completed, will be the largest of its kind in the nation.

Rockwell sets up professorship

ROCKWELL Manufacturing Company has established a distinguished professorship in engineering at the Pennsylvania State University. It is the first corporation to take part in the University's newly established Great Scholars Program.

The program is designed to advance "the standards of excellence in the fields of graduate teaching, and basic research in science, technology and the humanities."

Willard F. Rockwell Jr., president of Rockwell, expressed the hope that other corporations would follow this example and cooperate with Penn State in its endeavor to better serve the expanding needs of the Commonwealth of Pennsylvania.

Bosses dig during strike

EXECUTIVES and white collar workers at Washington Gas Light Company rolled up their sleeves and dug in on street installation, repair and home service crews for 15 days recently, June 2-17, while maintenance workers were on strike.

This pinch-hit labor force worked a seven-day, 84-hour week to allow the utility to continue operations until the strike was settled.

The white collar workers handled emergency orders and orders that required fairly prompt service. Minor adjustments and repairs that did not require immediate attention were deferred until the end of the strike.

Engineering scholarship awarded

AN HONOR graduate of Central District Catholic High School of Pittsburgh has been chosen as New York State Natural Gas Corporation's 1961 engineering scholarship winner.

William Keith Miller was selected by the company's scholarship committee for the $7,000 scholarship package to Illinois Institute of Technology, Chicago, Ill.

The award includes tuition, fees, certain travel expenses and summer employment following his freshman, sophomore and junior years.

Miller, the fourth winner of the scholarship, will be the first to major in mechanical engineering. The three previous winners chose chemical engineering.

Navy orders gas turbines

CLARK BROS. CO. division of Dresser Industries, Inc., has been designated prime contractor by the U. S. Navy, Bureau of Ships, on a $1.6 million contract to design and build four gas turbine generators for magnetic minesweeping service.

The gas turbines are rated at 1480 KW each and will be geared to dc pulse generators. They will be installed on minesweepers to supply current to large cables towed behind the ships. The current-carrying cable creates a magnetic field that explodes mines at a safe distance. Each turbine will be mounted directly above the generator and will drive it through a vertical offset speed reducing gear.

Pipeline talks planned

THE SIXTH ANNUAL Natural Gas Pipeline Institute will be held at the New Seward County Courthouse in Liberal, Kansas, October 24-25.

The institute is intended to present the latest practical information pertaining to the construction and operation of natural gas pipelines.

Registrations are being handled by: O. D. Calhoon, Sr., University of Kansas, Southwest Kansas Center, Box 653, Garden City, Kan.

Colorado plans merger

A MERGER of Public Service Company of Colorado and Colorado Central Power Company is being planned.

Detailed terms of the merger agreement are being prepared at the present time and will be submitted to the boards of directors of the two companies.

Following action by the respective boards, it will be necessary for the merger to be approved by the stockholders of both companies and the Public Utilities Commission of the State of Colorado.

The intent to merge, announced recently by the presidents of the two companies, follows the approval by the board of directors of the Colorado Central Power Company and the executive committee of the Public Service Company of the general terms upon which the merger will be based.

Pioneer Gathering purchased

NORTHERN Natural Gas Company has purchased Pioneer Gathering System, Inc., from Pioneer Natural Gas Company at Amarillo, Texas.

Pioneer Gathering is engaged in the purchasing, gathering and delivering of natural gas. Its 133-mile gathering system is located in West Texas, and Northern has been its major purchaser.

Northern will operate the gathering system under a newly formed wholly owned subsidiary, Northern Natural Gas Pipeline Company.

Sky chefs prefer gas

Rene Baudat, food training director, Sky Chefs Inc., cooks with gas in American Airline's flight kitchen at New York International Airport

"Cleaner Air Week" coming

FOR THE seven days beginning October 22-28, Americans will have their attention directed toward a national problem—air pollution—through observance of the 13th Annual Cleaner Air Week.

Local Cleaner Air Week committees in scores of cities across the country are operating units of the campaign.

As part of the program of air pollution control, many municipalities have approved use of the new, improved smokeless-odorless gas incinerators.

Utility rents refrigerators

WISCONSIN Southern Gas Company ran a campaign in 1960 to rent gas refrigerators and scored over 50 rental-sales.

This year, Wisconsin Southern is doing it again, offering $50.00 cash for old refrigerators.

Arkla announces price reduction, product expansion

AN ACROSS-THE-BOARD price reduction of $100 on all residential-type central cooling-heating units has been announced by Arkla Industries Inc.

W. R. Stephens, president of Arkla, also announced that during 1962-Arkla will introduce revolutionary gas-fired 2 and 3-ton central heating-cooling units, which will be designed and priced to enable the gas industry to compete in the builder and multiple housing market.

Arkla presently markets a line of residential-type gas absorption central air conditioning units under the trade name of Sun Valley All-Year, ranging from 3.5 tons through 6.4 tons. Arkla will bring out additional units in the intermediate range of residential usage during 1962, Mr. Stephens said. The present five-year warranty in effect on all Arkla units also will apply to all models to be introduced in 1962, he added.

Mr. Stephens said the price changes have been made possible by a continuing program of manufacturing cost studies at the Evansville, Ind. plant, which Arkla acquired from Servel, Inc., in 1957.

"At the time of the Servel purchase," Mr. Stephens said, "Arkla arbitrarily cut prices on gas air conditioning below those previously set by Servel. Since that time, despite steady increases in the cost of manufacturing, Arkla has steadily reduced prices. The reduction announced today makes our Sun Valley gas air conditioning prices 27 per cent less than they were in 1957.

"We take extreme pride in announcing this price reduction to the industry effective August 4, believing it to be an important stride forward in enabling the entire industry to establish itself more firmly in the field of single-unit central heating and cooling," Mr. Stephens said.

Highlights of cases before the Federal Power Commission

Bureau of Statistics, American Gas Association

Certificate cases

● **El Paso Natural Gas Co.** has been authorized to increase the capacity of its Eunice field compressor station in Lea County, New Mexico, by 3,400 horsepower, and to construct nearly nine miles of field pipeline. These facilities, which will be constructed at an estimated cost of $1.5 million, will be used to take up to 46 million cubic feet of residue gas daily from Skelly Oil Co., and to compress approximately 28 million cubic feet of additional natural gas purchased from Phillips Petroleum Co.

● **Houston Corporation's** subsidiaries have received authorization to expand their pipeline systems at an estimated cost of $23.4 million. The Houston Texas Gas and Oil Corp. will build about 235 miles of sales lateral lines and add 30,000 horsepower in compressor capacity at an estimated cost of $16.1 million. These facilities will increase maximum daily capacity by 93 million to a total of 371 million cubic feet of natural gas and will make natural gas available to 11 new direct sale customers, and to 21 new resale customers, who are expected to serve nearly 100,000 new residential customers. Coastal Transmission Corp. will increase maximum daily deliverability by 97.5 million to a total of 371 million cubic feet of natural gas with the construction of 71 miles of supply laterals and 12,500 in additional compressor horsepower. The additional supply of natural gas will be purchased from Southern Natural Gas Co., and from sources in Texas and Louisiana.

● **Iroquois Gas Corp.** has been authorized to develop and operate underground storage facilities at an estimated cost of $1.8 million in the Perrysburg Gas Field, N. Y. When completed in December, 1963, the reservoir will hold a total of 5.3 billion cubic feet of natural gas.

● **Manufacturers Light and Heat Co.** has been granted temporary authorization to construct 10.5 miles of 24-inch line to replace a 16-inch line in Pennsylvania, and to add 4,000 compressor horsepower at an existing station in West Virginia at a combined cost estimated at $2.4 million. The new facilities will enable the company to take additional natural gas from its Victory Storage Field, which has been expanded in recent years to a maximum peak-day availability of 205 million cubic feet.

● **Natural Gas Pipeline Company of America** was granted temporary authority to construct facilities designed to sell an additional 60 million cubic feet of natural gas daily to eight utility customers in Illinois, Iowa, and Wisconsin. The company will build about 257 miles of 30-inch line paralleling sections of the existing system in Arkansas, Illinois, Missouri, and Texas, and 5,800 additional compressor horsepower at stations in Texas, at a combined cost in excess of $28.5 million. The temporary certificate is conditioned upon the company contracting to purchase at least 23 million cubic feet of additional gas per day, which the company contended was available for purchase.

● **Ohio Fuel Gas Co.** has filed an application seeking authority to replace approximately 19 miles of smaller diameter pipeline with larger pipe, in order to increase peak day deliverability capacity from 91.8 to 128.3 million cubic feet of natural gas. These facilities, estimated to cost $946,000, are required to assure adequate service to Ohio retail customers during the 1961-62 winter season.

● **Tennessee Gas Transmission Co.** has been granted a temporary certificate to install 18,300 horsepower in compressor capacity on its Delta, La., to Portland, Tenn., line in lieu of constructing nearly 158 miles of pipeline loops to parallel existing lines. The increase in compressor horsepower, at a cost of $6.1 million, will serve the same purpose, of increasing sales capacity by 100 million cubic feet of natural gas daily to New England customers, as the previously authorized loop lines would have provided at a cost estimated at more than $27.2 million. The temporary authorization is conditioned to prohibit the company from using its higher cost Bastian Bay reserves to serve the New England market in order to avoid future increases in costs and rates. The Commission at the same time requested the company to formulate a definite plan for providing permanent winter service to New England customers who have been receiving their gas needs on a year-to-year basis for a number of years.

● **Transcontinental Gas Pipe Line Corp.** received temporary authority to construct and operate natural gas facilities costing about $31.1 million, and designed to deliver an additional 97.3 million cubic feet of peak day gas to 26 customers in Delaware, Georgia, Maryland, New Jersey, North Carolina, Pennsylvania, South Carolina, and Virginia. The temporary authorization includes construction of 187 miles of loop line and a 4,000 horsepower compressor station. In another certificate case, temporary authority was granted the company to construct facilities to enable it to attach new reserves in the offshore Louisiana area. The authorization permits the company to build a new 4,200 horsepower compressor station and 17 miles of pipeline connecting the Block 23 Field in the South Marsh area to the system. These facilities are estimated to cost about $3.5 million.

Gas air conditioning installed in huge bakery

One of the largest factory air conditioning installations in the country is nearing completion at National Biscuit Company's bakery in Chicago. Three 1,000-ton gas air conditioning units of the type shown here are being installed. The Peoples Gas Light and Coke Company will supply fuel

● **United Gas Pipe Line Co.** has filed a budget-type application for the construction of field facilities to expedite the purchase and attaching of new natural gas reserves to the system during 1962. The over-all cost of all construction will not exceed $3 million while the cost of individual projects will be limited to $400,000.

Among other FPC actions, the St. Lawrence Gas Co. Inc. was authorized to import 3.7 billion cubic feet of natural gas per year from Canada to serve consumers in the Massena-Ogdensburg area in New York State. Competing applications to serve this area were denied. In another action, Arkansas-Louisiana Gas Co. is seeking to acquire and merge the MidSouth Gas Co. which distributes natural gas in eastern Arkansas, and operates interstate pipelines extending into Tennessee. The Natural Gas Transmission Co. of Seattle, Wash. has been exempted from regulation under the Natural Gas Act pursuant to the terms of the Hinshaw Amendment. This makes a total of 127 companies to be exempted, either fully or in part, since the Hinshaw Amendment became effective March 27, 1954.

SUMMARY OF PIPELINE COMPANY RATE FILINGS—JULY, 1961

	Number	Annual Amount
Increases under suspension at beginning of month	99[a]	$376,196,200[a]
Increases suspended during month	3[b]	24,474,600[b]
Increases disposed of after suspension	3	1,645,100
Amount allowed	—	—
Amount disallowed	—	1,645,100
Amount withdrawn	—	—
Increases allowed without suspension	99	$399,025,700

[a] Revised to reflect the termination of 7 cases, in amount $10,546,100, on which orders approving refunds or prescribing rate reductions had been issued, and the companies had not yet fully complied with the Commission orders.

[b] Includes 1 case, in amount $17,903,000, remanded by the court.

SUMMARY OF INDEPENDENT GAS PRODUCER RATE FILINGS—JULY, 1961

	Number	Annual Amount
Tax rate increases allowed without suspension	—	$ —
Other rate increases allowed without suspension	25	74,940
Rate increases suspended	20	47,248
Total rate increases	45	122,188
Tax rate decreases allowed without suspension	—	—
Other rate decreases allowed without suspension	—	—
Total rate decreases	—	—
Total rate filings (all types)	334	—
Total rate filings acted on from June 7, 1954 to July 31, 1961	55,855	—
Rate increases disposed of after suspension (during month)	6	319,001
Amount allowed	—	297,125
Amount disallowed	—	—
Amount withdrawn	—	21,876
Rate increases suspended and pending at end of month	3,852	$167,612,194

SUMMARY OF PIPELINE COMPANY CERTIFICATE FILINGS AND ACTIONS—JULY, 1961

	Number of Applications	Miles of Pipeline	Compressor Horsepower	Estimated Cost
Pending at beginning of month*	179	6,514	627,428	$798,247,425
Filed during month	21	79	640	17,676,678
Issued during month	13	141	58,950	25,310,459
Otherwise disposed of during month	6	105	25,040	28,057,904
Pending at end of month	181	6,347	544,078	762,555,740

* Adjusted to include amendments and supplements to applications and modifications of certificates.

Revised SGA text issued

A SECOND EDITION text for the Southern Gas Association's Home Study Course in Natural Gas Distribution offered through Texas A. and I. College has been published and will be used by all future applicants.

"The second edition is not an extensive revision," Dr. Frank Dotterweich, course director, explained, "but rather represents an effort by the Home Study Course Committee to provide students with the very latest study material by making current certain statistical reports, charts, costs figures and related material."

Designed to give a distribution employee a better understanding of his job, company and the natural gas industry, over 1,200 gas company employees have enrolled in the course during the 18 months it has been available.

The 13-chapter text covers a variety of subjects including: gas utilization, customer service, mains and services, gas laws, measurement and pressure control, corrosion protection and peak shaving.

Penn Controls expands

PENN CONTROLS, INC., has acquired the business, good will and principal operating assets of Baso, Inc., subject to the approval of the stockholders of Baso.

Baso, Inc. was founded in 1914 under the name of Milwaukee Gas Specialty Company. It is a leading manufacturer of automatic controls, switches and valves for gas burning devices in domestic and industrial markets. Baso pioneered the use of thermoelectricity in gas controls, and for several years carried forward important research on thermoelectric materials. This research effort was transferred to Minnesota Mining and Manufacturing Company in 1957.

Penn Controls, Inc. manufactures a broad range of products for the refrigeration and air conditioning industry, in addition to industrial and home heating controls. It is a leading supplier of pressure switches for domestic water pumps and produces other air, oil, hydraulic and electric controls for industry.

Gaslight signals hope

Minneapolis Gas Company donated Arkla Gasign to Minneapolis General Hospital to replace wall sign and help drivers locate hospital in emergency

Arkla to market dishwasher

THE FIRST NATURAL gas-operated dishwasher in history will be available soon, Arkansas Louisiana Gas Company announced recently, following a preview of the new gas appliance by company officials.

It is the result of 15 years of development by Preway, Inc., of Wisconsin Rapids, Wis., producers of gas ranges and ovens, gas furnaces and other equipment.

W. R. Stephens, chairman of the board and president of Arkla Gas, said the new dishwasher is scheduled to be available in his area by late this fall.

"This is the first new gas kitchen appliance to come along since the gas clothes dryer a decade ago," Mr. Stephens said. He termed the gas dishwasher as the "missing link" in providing what can now be a complete "package all-gas kitchen."

Russians postpone tour

A TOUR of the U.S. by Soviet gas experts has been postponed for the second time, the American Gas Association has announced.

A group of ten Russians was scheduled to arrive in New York September 3, for a month-long tour of U.S. gas facilities. A. G. A., which is sponsoring the trip, was notified by the U.S. Department of State that the Russians have tentatively set November 12, as their new arrival date.

The Russians were first expected to tour the country in May, but were unable to complete arrangements for the trip. No reason was given for the second postponement.

Eight U.S. gas industry experts returned recently after a month in Russia. The reciprocal tours were arranged under a 1959 agreement between the two countries providing for scientific and cultural exchanges.

Gas refrigerator co-stars

Walter Brennan of "The Real McCoys" TV show and an RCA Whirlpool gas refrigerator co-starred recently on the nationally televised program

A. G. A. lists October publications

ACCIDENT PREVENTION

• **How Injuries to Gas Men Might Be Avoided,** Vol. X, September, 1961, No. 3. Members, 1 copy free; 2 to 50 copies 10 cents each; 51 to 99 copies 7 cents each; 100 to 500 copies 5 cents each. Non-members 10 cents each. Cat. No. 7/AP/61-3.

• **Safety Siftings,** Vol. VI, No. 3, September, 1961. Compilation of safety articles. 1 copy free to members. More than one copy 10 cents each. Cat. No. 21/AP/61-3.

HOME BUREAU

• **A Wonderful New Kitchen in a Wonderful Old House.** *Ladies Home Journal* reprint. 7 cents each. Cat. No. 98/K.

OPERATING SECTION

• **Selected photographs of vehicles used in customer service work.** Free on loan only. Cat. No. OP-61-L-1.

• **Copies of state statutes concerning underground storage.** Free on loan only. Cat. No. OP-61-L-4.

• **Summary of clauses used in present underground storage lease forms.** Free on loan only. Cat. No. OP-61-L-3.

PREMIUMS AND PRINTED MATERIAL

• **The Gold Star Helps You . . . Sell Gas Ranges.** Sales manual subtitled *How to Sell —Gas Ranges.* 1 to 9 copies 20 cents each; 10 or more 17 cents each. Cat. No. 19a/GD.

RESEARCH

• **Using Foaming Agents to Remove Liquids from Gas Wells.** A report by H. N. Dunning and J. L. Eakin. $2.00. Cat. No. 36/PR.

• **Study of Experimental Range Top Burner Systems.** Research bulletin 88 by T. E. Hampel. $2.00. Cat. No. 143/DR.

• **Investigation of the Thermodynamic Properties of the Combex-ADL Natural Gas Burner.** A report from Arthur D. Little. $3.00. Cat. No. 6/SR.

STATISTICS

• **Gas Facts,** 1961 edition. Contains data for 1960. First 5 copies $3.00. Each additional copy $1.50. Cat. No. 7g/S.

• **Gas Data Book,** 1961 edition. Contains data for 1960. First copy 50 cents. Each additional copy 25 cents. Cat. No. 6g/S.

• **Historical Statistics of the Gas Industry.** $10.00 per copy. Cat. No. 73/S.

GAMA issues 1961 edition of annual summary

THE GAS APPLIANCE Manufacturers Association has announced publication of the 1961 edition of *Natural Gas Construction Data.*

This latest edition of the GAMA annual summary includes details for 97 per cent of the total natural gas pipeline mileage authorized during 1960 by the Federal Power Commission. Additionally, the study details more than 90 per cent of the pipeline mileage included in those projects pending hearing and disposition by FPC on January 1, 1961. A separate section records the major authorizations and filings during the first four months of the current year.

The foreword deals with the past, present and future of the natural gas industry in terms of such items as customers, pipeline construction, natural gas reserves, steel and other metal requirements, and underground storage.

The 1961 edition also includes specific and detailed natural gas construction data on construction plans indicated during January-April, 1961, and post-World War II natural gas expansion, and lists names and addresses of gas transmission companies; cities benefiting by 1960 authorizations, and charts on natural gas reserves, production, customers, and pipeline miles.

A limited number of copies of the 1961 edition will be available at $3.00 per copy from Accounting Dept., Gas Appliance Manufacturers Association, 60 East 42nd Street, New York 17, N. Y.

A few copies of each of the seven previous annual editions are still available at $1.00 each.

Market seminar coming

THE A. G. A. Marketing Research Committee will sponsor a Third Marketing Research Seminar for Gas Utilities, Thursday and Friday, October 19 and 20, at the Essex Inn, Chicago, Ill.

A list of eminently qualified utility executives and professional consultants will discuss topics specifically keyed to gas company operations. Subjects to be covered include: marketing research and population studies; marketing research contributions to main extension policies; marketing research as part of area development; marketing research and load research; marketing research to help meet competition; marketing research to promote good customer relations, and modern techniques in advertising research.

Special guest speaker will be A. G. A.'s Managing Director, C. S. Stackpole.

SMU to hold seminar

ECONOMIC AND LEGAL aspects of the petroleum industry, with special reference to costs and future supply conditions, will be studied and discussed by industry leaders, university faculty members and members of regulatory bodies at a two- or three-day seminar conference early in 1962 at Southern Methodist University, as a result of a $9,600 grant to the school from Resources For The Future, Inc.

Resources For The Future Inc. is a nonprofit corporation established in 1952 with the cooperation of the Ford Foundation to advance the development, conservation, and use of natural resources through programs of research and education. For this purpose it carries on a program of research and also makes grants to universities and other agencies for research and education.

Helium plant to be built

A MULTI-MILLION dollar helium extraction plant will be erected by an affiliate of Cities Service Gas Company in the Kansas Hugoton field to process the natural gas stream entering that company's pipeline system near Ulysses, Kansas.

Under a 22-year contract between the Secretary of the Interior and Cities Service Helex, Inc., a newly formed corporation which will own and operate the helium plant, crude helium will be supplied to the Bureau of Mines at the outlet of the extraction plant, and the government agency will transport it by pipeline to its storage facilities in the Amarillo area.

Pyrofax sponsors contest

A NEW TEEN-AGE baking contest with the theme "Bake Your Way Toward Your B.A." has been launched with the opening of the school year by Pyrofax Gas Corporation, unit of Union Carbide Corporation.

There will be three regional grand prizes that include a $1,500 college scholarship, plus a possible $500 bonus, a $500 Caloric gas range for the teen-age winner, and a similar range to the home economics department of the winner's school.

Gas film enters festival

A PUBLIC SERVICE film produced by the Southern California Gas Company has been accepted for entry in the 1962 International Film Festival in San Francisco.

The film, "The Other Side of the Street," will be entered in the festival's second annual "Film as Communication" competition conducted November 1 to 14 under the auspices of the San Francisco Art Commission.

Personal and otherwise

Gillespie receives award

DANIEL C. GILLESPIE, a 32-year veteran of the Columbia Gas System has been selected as the Systems Man of the Year Award Winner for 1961 by The Systems and Procedures Association. He was to receive a plaque and citation and a check for $1,000 at the International Systems Meeting in Cleveland, October 8-11.

Mr. Gillespie is a member of the Central Ohio Chapter of the Systems and Procedures Association and was one of the organizers and national director of the chapter for the fiscal year 1958-1959.

Mr. Gillespie joined The United Fuel Gas Company, a subsidiary of Columbia Gas in 1928. After serving for 20 years in customers accounting and collecting, and office mechanization work, he was transferred to the methods and procedures department of the Columbia Gas System Service Corporation. In April, this year, he was appointed director of data processing with headquarters in Columbus, Ohio. Prior to this he served as director of system methods.

Mr. Gillespie has also served on various combined committees of the A. G. A. and EEI. He is presently serving as a member of the A. G. A. Electronic Data Processing Committee, and the A. G. A. Methods and Procedures Committee.

MidSouth elects Hill

R. P. Hill

RICHARD P. HILL, vice president of MidSouth Gas Company since 1957, has been elected president of the company. He succeeds Carl E. Cloud, who resigned to become president of Michigan Gas Utilities Company.

A veteran in the utility business, Mr. Hill began his career with Arkansas Power and Light Company over 30 years ago, and worked in various capacities with AP&L for 19 years.

In 1950, he joined the newly formed MidSouth Gas Company as general sales manager. He was elected vice president and a member of the board of the company in 1957.

Mr. Hill is a past chairman of the sales section of the Southern Gas Association.

Dr. Linden appointed director of IGT, succeeds Elliott

H. R. Linden

DR. HENRY R. LINDEN has been appointed director of the Institute of Gas Technology.

Dr. Linden, formerly research director, succeeds Dr. Martin A. Elliott, who has been named academic vice president of Illinois Institute of Technology, with which IGT is affiliated. Dr. Elliott will continue to serve the gas industry as executive consultant to IGT.

Dr. Linden came to IGT in 1947, after three years with Socony Mobil Oil Company in Brooklyn, where he worked on the correlation of properties of liquid petroleum fractions, and combustion of petroleum fuels.

In 1953 he was named associate research director with primary responsibility for the development and improvement of gasification and petrochemical processes. In 1956 he was placed in charge of all IGT research.

Dr. Linden has authored or co-authored about 50 publications, and holds a number of patents in the fuel technology field. He has received the Award of Merit of the Operating Section of the American Gas Association, and the Bituminous Coal Research Award.

A chemical engineering graduate of Georgia Institute of Technology (1944), he earned a Master's degree in chemical engineering from the Polytechnic Institute of Brooklyn (1947), and a Ph.D. from Illinois Tech (1952).

He is a member of the American Chemical Society; American Gas Association; American Institute of Chemical Engineers, and American Petroleum Institute.

Whiteman chairman, Creigh president at Kansas-Nebraska

S. D. WHITEMAN, president of the Kansas-Nebraska Natural Gas Company, Inc., since 1946, has been named chairman of the board and chief executive officer.

Thomas Creigh, Jr., vice president in charge of production, transmission and gas supply since 1951, has been appointed president of the company and principal operating officer, and Frank Flagg, who formerly held the discontinued office of executive vice president, has been named financial vice president.

Three new vice presidents have also been named. Frank Soldan, general sales manager, is now vice president in charge of merchandising. Fred Steffens, secretary and controller, adds a vice presidency to his title and Stephen D. Ford, Jr., chief engineer, has become vice president in charge of production and gas supply.

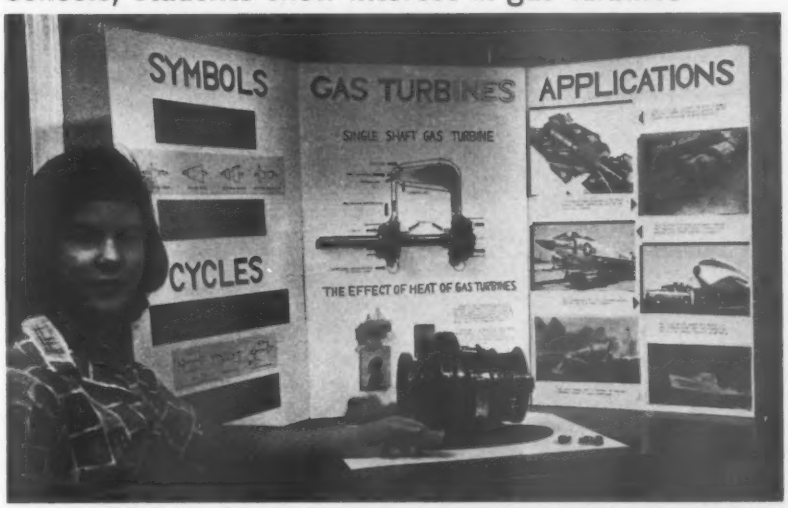
In two other management promotions, James Asbury, senior engineer, replaced Mr. Ford as chief engineer and John Ashburn, engineer, was named senior engineer.

Mr. Whiteman, now chairman of the board and chief executive officer, joined Kansas-Nebraska in February, 1941, and shortly thereafter was named vice president and general manager. In 1946 he was appointed president of the company. His knowledge of the gas business goes back to 1923.

The new president, Thomas Creigh, Jr., was graduated from Wabash College in Crawfordsville, Ind. His first job in the gas industry was as an oiler at the Northern Natural compressor station at Clifton, Kansas. In 1936 he became an inspector for the Kansas Pipeline and Gas Company, the original company name for the present Kansas-Nebraska Natural Gas Company, Inc.

In March, 1943, he was appointed chief engineer and was elevated to the position of vice president in charge of production, transmission and gas supply in February, 1951.

Schools, students show interest in gas turbines



Not only are schools becoming conscious that gas turbines are a good economic source of all power requirements, but children also are learning about modern gas power. Here, Barbara Emerson, 9th grade, Dolan Junior High School, Stamford, Conn., shows her exhibit at annual science fair

Danekind retires at Maytag

A. C. Danekind

A. C. DANEKIND, assistant to the president of the Maytag company since joining the laundry appliance firm in June, 1948, has retired.

Mr. Danekind, who became a company officer in 1949, came to Maytag from General Electric Company, Schenectady, N. Y., where he served in various staff positions. While at Maytag, he had been assigned many special projects relating to the company's expansion program.

Changes in N.E. gas division

THE GAS DIVISION of New England Electric System has announced four new appointments.

Harold L. Pratt has been named assistant to the general superintendent of North Shore Gas Company. Ernest G. Warshafsky has been named distribution engineer succeeding Mr. Pratt.

Arthur W. Farley has been appointed engineer for the gas division, and Thomas H. Rennell, Jr., has been appointed chief gas engineer. Mr. Rennell succeeds Herbert C. Jones, who has retired.

AiResearch names Fletcher

ROBERT A. FLETCHER has been appointed to the newly created post of sales manager—industrial gas turbines for AiResearch Manufacturing Co. of Arizona, a division of The Garrett Corporation.

Mr. Fletcher joined AiResearch in 1959, after having been sales manager of Solar Aircraft Co. of Des Moines, Iowa. As supervisor of Fabrication Control at AiResearch, Phoenix, he was instrumental in setting up a new electronic production control system.

This is the second new appointment in the AiResearch industrial gas turbine field in the past four months. Previously, James T. Shore was promoted to program manager of AiResearch industrial gas turbines.

Wyman is general manager

ROBERT A. WYMAN has been appointed general manager of the Tappan Company's Murray, Ky., plant.

Mr. Wyman has served at the plant since 1959 in positions as chief engineer, factory manager and assistant general manager, and succeeds Verne O. Kyle, who died recently.

Mr. Wyman has had executive responsibility for all engineering and accounting functions in the Murray plant. He has also been instrumental in coordinating operations and forming policy.

Before joining Tappan he was associated with the Gray Manufacturing Co., Hartford, Conn., the Whirlpool Corp., Marion, Ohio, and was an instructor at Case Institute of Technology, Cleveland, Ohio.

O'Brien named to Department of Interior

JEROME J. O'BRIEN, vice president of the Monterey division, Mid-Continent region, Humble Oil and Refining Company, has been appointed director of the Office of Oil and Gas, U. S. Department of the Interior.

Mr. O'Brien succeeds Captain Matthew V. Carson and will serve under assistant secretary John M. Kelly in providing staff assistance in the development and management of oil and gas programs assigned to the department, including functions authorized by the Defense Production Act of 1950 as amended, with respect to petroleum and gas.

Mr. O'Brien received an A.B. degree in geology from UCLA in 1932 and a B.S. degree in petroleum engineering from the University of Southern California in 1934. He has been a petroleum and sales engineer and executive with a number of oil companies. From 1949 to 1953 he was executive vice president of the Jergins Oil Company of Texas. In 1953 he became president of the Monterey Exploration Company and in 1954 was vice president and manager of Mid-Continent operations of the Monterey Oil Company.

He is a member of the American Association of Petroleum Geologists, the American Institute of Mining and Metallurgical Engineers, the American Petroleum Institute, and a former president of the Texas Independent Producers & Royalty Owners Association.

Barno elected vice president at Worthington Corporation

PETER S. BARNO has been elected vice president-employee and public relations of Worthington Corporation.

Mr. Barno will be located at the company's world-wide headquarters at Harrison, N. J. He succeeds William A. Meiter, who recently was named vice president-Washington services for Worthington.

Mr. Barno formerly was vice president for public and industrial relations of Chase Brass & Copper Co., Inc. of Waterbury, Conn. Previously, he had been associated with Studebaker-Packard Corporation of South Bend, Ind. and Thompson Ramo Wooldridge Inc. of Cleveland, Ohio.

Mr. Barno graduated from Baldwin-Wallace College, Berea, Ohio, with the degree of B.A. in business administration and education. From 1941 to 1952, he was associated with Thompson Ramo Wooldridge Inc. of Cleveland as personnel administrator, where he played an important part in post-war conversion operations of the company's Tapco plant in Euclid, Ohio. In 1952, he joined Packard Motor Car Company at Detroit, Michigan, as director of industrial relations, and after the 1954 merger, assumed the same post with Studebaker-Packard Corporation at South Bend, Ind. He joined Chase Brass & Copper Company, Inc. in 1957.

Peoples appoints Bashore area development manager

ROBERT G. BASHORE has been appointed manager of area development for The Peoples Natural Gas Company.

Mr. Bashore, who was formerly assistant manager of area development, succeeds Charles L. Yost, who retired August 1.

Mr. Bashore will have the responsibilities of carrying out the Peoples Gas area development program to promote and accelerate the growth and over-all economic development of Peoples' service area.

He will work with chambers of commerce, state and local industrial development commissions, civic groups, and industrial development staffs of Consolidated Natural Gas Company, the parent company, and subsidiary companies.

Mr. Bashore, with the Reading Company of Philadelphia, Pa., from 1948 to early 1961, was actively engaged in industrial development work, and has had extensive experience in the field.

He received his BS degree in Civil Engineering from Pennsylvania Military College.

Heath, Clary appointed

R. W. HEATH has been named executive vice president, and H. F. Clary has been appointed senior vice president at Signal Oil and Gas Company.

Mr. Heath, who joined Signal as an engineer in 1923, had been vice president in charge of the company's gas department and a director since 1948.

Mr. Heath is vice president of the Natural Gasoline Association of America, and is a past president of the California Natural Gas Association.

Mr. Clary, who joined Signal as an attorney in 1925, had been vice president in charge of the legal department and a director since 1954, and general counsel since 1953.

He graduated from the University of California with an AB degree in 1922, and in 1925 received an LLB degree from Harvard Law School.

Guiberson elected chairman

GORDON G. GUIBERSON has been elected chairman of the board of The Guiberson Corporation, one of the Dresser Industries.

Mr. Guiberson has been associated with the oil industry since 1932. In 1937 he was named executive vice president and general manager of the company and in 1951 became president of this oil tool manufacturer.

At the same time, Mr. Guiberson announced the appointment of Robert L. Boyd to the position of president.

United Gas appoints Jones

LAURIE P. JONES has been appointed sales manager for all distribution operations of United Gas Corporation. Mr. Jones, who has been Houston division sales manager for the last four years, will make his headquarters in Shreveport, La.

Roundup of promotions and appointments

UTILITY

Arch A. Sproul, executive vice president, W. J. Perry Corporation, has been elected to the board of directors of the Columbia Gas System, Inc.

Leonard H. Voelker has been named to the newly created post of industrial development manager at Washington Natural Gas Company.

Herman F. Schuster has been appointed assistant comptroller of the Kansas Power and Light Company.

Kenneth E. Manner, assistant secretary of Cities Service Gas Company, has been named to the company's board of directors, and **Donald A. Hamilton,** assistant treasurer, has been elected to the board of Cities Service Gas Producing Company, a subsidiary.

Lurting K. Beatty has been promoted to commercial and air conditioning sales manager of the Peoples Natural Gas Company.

H. C. Heflinger, associate district manager of the Lake Erie district, Ohio Fuel Gas Company, has retired.

Donald C. Navarre, formerly with the gas department of the city of St. Petersburg, Fla., has joined Great Falls Gas Company as sales manager.

Ronald E. Cox, Springfield collection supervisor, Ohio Fuel Gas Company, has been promoted to Ironton division accounting supervisor for the Ohio Valley Gas Company. Mr. Cox succeeds **Delbert Koch,** who recently was named supervisor of collection in the Ohio Fuel Gas Company's northwestern district office in Toledo.

Ernest H. Hundertmark has been promoted to senior engineer, gas measurement and regulation, for the Peoples Natural Gas Company.

MANUFACTURER

T. S. Bushnell has been promoted to the new position of sales manager, special products, at Tube Turns Plastics Inc.

George E. Rodier has been appointed manager of Maytag Company Ltd.'s parts and service department in Winnipeg, Canada, and **Herbert E. Pelzer** has been named to succeed Mr. Rodier as a regional manager in the firm's western Canada branch.

Robert F. McInness, Redmond, Wash., has been named sales representative for the Welbilt Corporation.

Lee O. Hays has been appointed acting traffic manager at the Maytag Company to succeed **Glenn Minear,** who died in July.

Allan Anderson has been named southeastern regional representative for Hamilton Manufacturing Company's laundry appliance division.

Raymond E. Young has been appointed acting comptroller of Worthington Corporation.

At Robertshaw-Fulton's Robertshaw thermostat division, **Ernest M. Teichert** and **Clarence Wantz** have been named assistants to the general manager; **William Carle Olmer** has been appointed shop superintendent, replacing Mr. Teichert; **Charles D. Branson** has been named to succeed Mr. Wantz as chief engineer.

John J. Gardner goes to the new post of manager, manufacturing engineering, and **Eugene R. Gelfo** has been appointed sales promotion manager.

Philip H. Snoberger has been named sales manager for Robertshaw-Fulton's Bridgeport thermostat division.

Max A. Coreth has joined Robertshaw-Fulton's corporate staff as manager of the firm's international marketing division.

OBITUARY

Verne O. Kyle

V. O. Kyle

general manager of The Tappan Company's Murray, Ky. plant and a director of the company, died August 2.

A Tappan employee since 1929, Mr. Kyle began as a pipe threader and progressed through such jobs as press operator, time study man, paint shop supervisor and engineering layout man to become personnel director of Tappan's Mansfield, Ohio plant in 1940. In 1948, he was appointed superintendent of the Murray Manufacturing Company, Tappan's range producing subsidiary in Murray, Kentucky.

He was named general manager in 1952.

Charles W. Stevens

president of The Lattimer-Stevens Company, died August 30.

Mr. Stevens had been associated with The Lattimer-Stevens Company since 1919 and had served as president of the company since 1946.

He was a member of A. G. A. for many years preceding his death.

CONVENTION CALENDAR

1961

OCTOBER

18-20 •Rocky Mountain Oil and Gas Association, Annual Convention, Denver-Hilton Hotel, Denver, Colo.

19-20 •A. G. A. Marketing Research Seminar, Essex Inn, Chicago, Ill.

23-27 •National Metal Exposition, Detroit, Mich.

24 •Metal Treating Symposium, Industrial and Commercial Section, Cobo Hall, Detroit, Mich.

24-25 •The Pipeline Institute, Court House, Liberal, Kansas

25-26 •A. G. A. Great Lakes Public Relations Workshop, Milwaukee Inn, Milwaukee, Wis.

29-31 •Independent Petroleum Association of America, Annual Meeting, Shamrock Hilton Hotel, Houston, Texas

NOVEMBER

4-7 •National Retail Lumber Dealers Association Convention, Chicago, Ill.

6-9 •National Hotel Exposition, New York Coliseum, N.Y.C.

6-10 •National Warm Air Heating and Air Conditioning Association, La-Salle Hotel, Chicago, Ill.

12-15 •Air Conditioning and Refrigeration Institute, Annual Meeting, The Homestead, Hot Springs, Va.

13-15 •American Petroleum Institute, Annual Meeting, Chicago, Ill.

26-Dec. 1 •American Society of Mechanical Engineers, N.Y.C.

27-29 •A. G. A. Accounting Section Electronics Seminar, Sheraton-Cleveland Hotel, Cleveland, Ohio

DECEMBER

3-7 •National Association of Home Builders Convention, Chicago, Ill.

4-5 •Florida Natural Gas Association, Annual Sales Conference, Sarasota, Fla.

Personnel service

SERVICES OFFERED

Management, Distribution Operations—25 years experience, complete charge of medium-sized properties at division level, well versed in natural gas utilization, load building, sales, and merchandising, public, customer and employee relations, leakage control, system expansion, and system layouts including accounting, billing and budgeting. Complete resume upon request. **2028.**

Sales Manager—18 years utility experience, three years consulting, seven years manufacturer's representative. Interested in connecting with aggressive utility. Experienced in manufactured, natural and LP-gas, training salesmen, buying advertising and promoting. Will relocate. Complete resume on request. **2029.**

Director of Safety—25 years experience in developing, installing and supervising loss control programs in public utilities. Capable of complete charge of administering insurance programs including workmen's compensation, major medical, fire and public liability. Will relocate. Complete resume upon request. **2030.**

Engineering and Management—12 years experience in design, operations, construction, and maintenance of transmission and distribution facilities. Also experienced in meter shop operation, measurement and customer service training. Present position as operations manager. Complete resume upon request. **2031.**

Executive—due to compulsory retirement age 65, available after January 1, 1962. Thirty years experience natural gas company, reporting direct to the president. Experience covers public and employee relations; negotiations and placing of all general insurance, group life and group hospital insurance; administration of retirement income plan; organization and responsibility of safety and training programs. Excellent health. **2032.**

Plant-Distribution-Utilization and sale supervision—experience natural and LPG distribution. Good reference. Sixteen years experience. Free to travel, relocate. Desiring local management or sale-supervision. **2033.**

Personnel Director—for small company or staff member of industrial relations department of a large utility. Capable of designing and administering supervisory training and management improvement programs. Knows labor-management contract negotiating procedures. Will re-locate. Complete resume upon request. **2034.**

Management—25 years' experience in gas utilities; most recent, 10 years in management and utility commission. Have experience in engineering and operations of transmission and distribution systems; also customer, public and employee relations, customer service and sales. **2035.**

Expert Owning-Operating Cost Analysis—author of 1961 ASHRAE paper, "Integrated Load Technique for Estimating Annual Energy Use of Central Air Conditioning Plants," available on consulting basis for economic determinations of alternative designs of central air conditioning refrigeration plants. **2036.**

Geologist—four years' experience gas reserve estimates; five years' surface, subsurface and wellsite geology; two years' diamond core drilling. Desires position with variety and responsibility utilizing above experience in Great Lakes or Appalachian area. Age 35, family. **2037**

Plant-Distribution-Sales Utilization—experience natural, LPG, manufactured gases. Age 48. Free to travel or locate. Good reference. No employment connection at present. **2038.**

Manager—15 years' experience in natural gas operation-promotion-sales-utilization. Desires association with utility at division or local management level. Has been in complete charge of the following: merchandise sales; load building activities; all phases of operation and maintenance; public and employee relations; field and general office accounting affairs; domestic, commercial, industrial utilization. Excellent references. Will relocate. Complete resume upon request. Salary open. **2039.**

Executive—seeks greater opportunity than present position affords. Seven years in electric and gas utility operations, five years army service World War II, 10 years as electric and gas consulting engineer with national management consulting firm, three years with major natural gas transmission company. B.S. Mechanical Engineering, Master of Business Administration, registered professional engineer. **2040.**

Public Relations-Advertising-Business Development—15 years' experience. Executive assistant to chairman of the board (director of public relations, advertising, business development, personnel, editor of house organ, market research). Former news correspondent for leading wire service. Top newspaper, radio, television and advertising contact. College background. Will consider position as an assistant. Seeking opportunity with future. Salary open. Not a member of reserve. **2041.**

Management, Distribution Operations—11 years' managerial experience. Complete charge of medium-size properties. Proficient in merchandising, distribution and transmission design, operations, maintenance, construction, utilization, service training and office administration. Age 34. Resume upon request. **2042.**

Engineering or Legal with Management Opportunity—engineer with 4½ years' experience—three with major oil company in drilling and producing oil and gas wells and 1½ in underground construction. Will receive law degree in February, 1962. Resume on request. **2043.**

Director of Public Relations, Sales Promotion, Advertising—seven years' experience with major advertising agency and 15 years with consulting business, serving consumer and trade field. Age 45. Permanent full-time connection desired. **2044.**

Gas Engineer and Commercial Pilot—B.S. in petroleum and natural gas engineering. Experienced in design, installation and operation of gas distribution system. Foreign employment considered. Resume on request. **2045.**

Controller—10 years' experience in utility field, including three as vice president. Nine years in public accounting. Can be used profitably in company requiring strength in areas of budgetary control, long-range planning and special study work relating thereto. **2046.**

POSITIONS OPEN

Sales Manager—Utility in middle Atlantic states desires applicant, preferably with previous utility experience. Send resume in confidence. Compensation open. **0982.**

Customer Service Manager—Gas Operations—individual with broad utilization background needed to assume responsibility for operating service department and training personnel in an aggressive southern New England natural gas company. Write stating age, experience and salary expected. **0983.**

Gas Operating Engineer—college graduate with engineering background, interested in engineering, operating and construction activities of a southern New England gas company serving an area of 350,000 through 72,000 meters. Opportunity excellent for advancement to executive position. Age preference 27-32. Salary commensurate with qualifications. **0984.**

Manager of Maintenance and Repair—to take charge of maintenance and repair division of major manufacturer serving the gas, chemical, petroleum and petro-chemical industries. Requires graduate engineer with responsible contract maintenance experience who possesses the ability to negotiate contracts and build division. Salary $15,000-$20,000, plus incentives. **0985.**

Development Engineer—to guide design of new line of gas-fired furnaces for residential. Prefer graduate engineer with design experience in furnaces, burners and heat exchangers. Opportunity for engineer in a newly organized section. Location, Western New York State. Send short resume. **0986.**

Engineer, Gas Distribution—graduate engineer with experience in gas distribution field; duties in engineer design and layout of gas distribution facilities with a northern Illinois utility. Write, state age, experience and salary expected. **0987.**

Statistician—experienced in statistical analysis, depreciation studies. Qualified to testify before regulatory agencies. Masters degree in mathematics and knowledge of accounting desirable. Position offers permanence with wide opportunity for personal development and advancement with a rapidly growing gas and electric utility in the New York metropolitan area. Send complete resume, including salary requirements. **0988.**

Design Engineer—old-line mid-western designer, manufacturer and marketer of domestic and commercial gas ranges seeks young design engineer. BSME or EE required. At least two years' experience with mechanical or electro-mechanical company. Base salary in the $10,000 range. **0989.**

Combination Fitters and Gas Appliance Servicemen—five men required. High school graduates, ages 25 to 40. Minimum of six years' servicing experience on all types of gas appliances and air conditioning equipment. Hourly rate $3.10 plus liberal fringes. If you qualify, telephone collect Frank Keller or John Bolender, care North Shore Gas Co., Waukegan, Ill. **0990.**

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G. F. WATTERS.....Syracuse, N. Y.
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D. K. YORATH...Edmonton, Alta., Canada

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Chairman—Frank M. Foster, Southern California Gas Co., Los Angeles, Calif.

General Research Planning Committee
Chairman—Fred W. Batten, The Columbia Gas System Inc., New York, N. Y.

General Public Information Planning Committee
Chairman—R. J. Rutherford, Worcester Gas Light Co., Worcester, Mass.

FINANCE COMMITTEE

Chairman—James Comerford, Consolidated Natural Gas Co., New York, N. Y.

LABORATORIES MANAGING COMMITTEE

Chairman—William J. Harvey, Public Service Electric and Gas Co., Newark, N. J.

APPROVAL REQUIREMENTS COMMITTEE

Chairman—R. I. Snyder, Southern California Gas Co., Los Angeles, Calif.

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Pres.—Oakah L. Jones, The Consumers' Gas Co., Toronto, Ontario
Man. Dir.—W. H. Dalton, 55 Scarsdale Rd., Don Mills, Ontario

GAS APPLIANCE MANUFACTURERS ASSOCIATION
Pres.—W. G. Hamilton, Jr., American Meter Co. Inc., Philadelphia, Pa.
Man. Dir.—Harold Massey, 60 East 42nd St., New York, N. Y.

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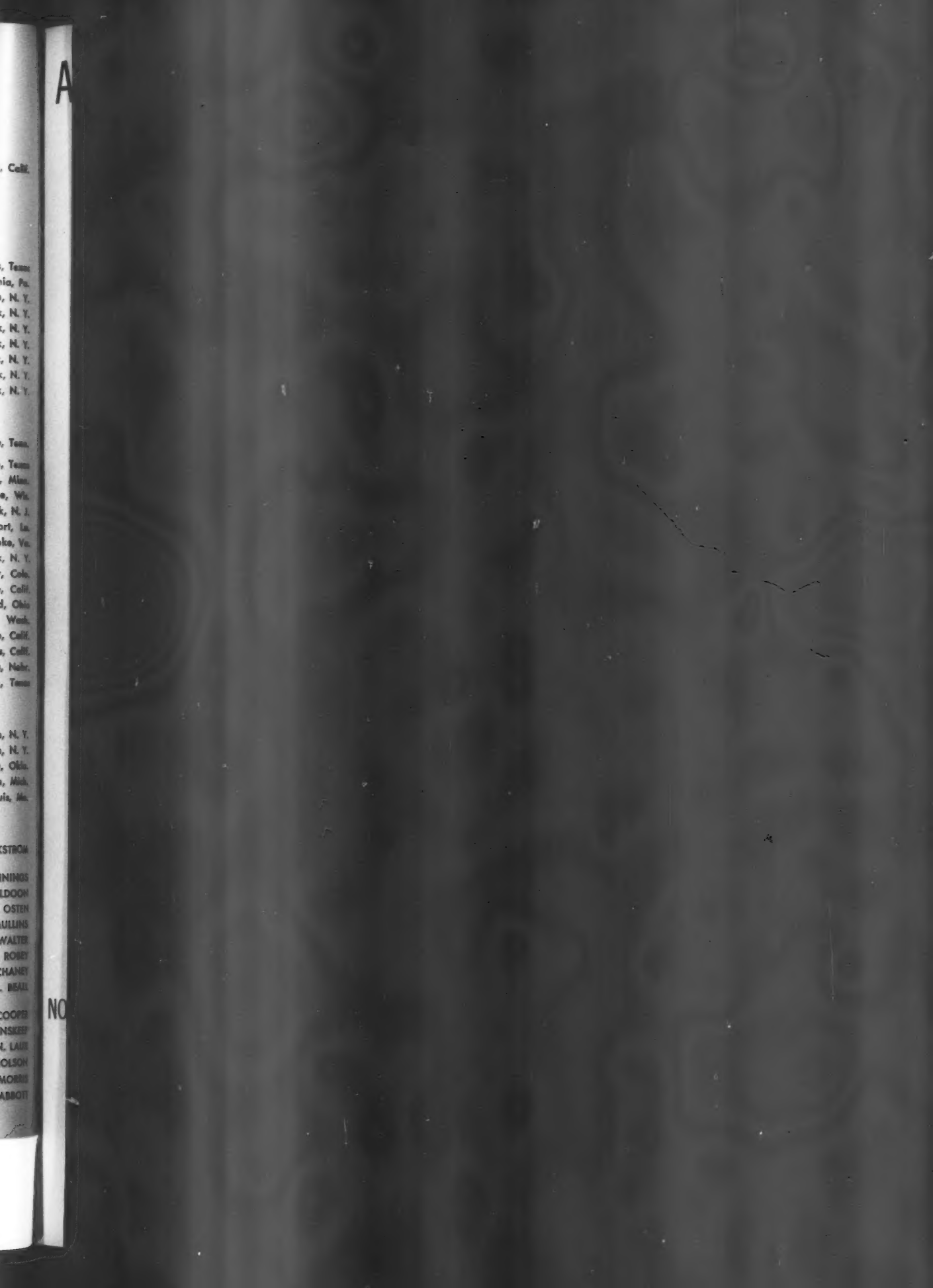
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